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PUBLIC DEVELOPMENT BANKS

TOWARD A NEW PARADIGM?

Fernando de Olloqui, Editor

Institutions for People

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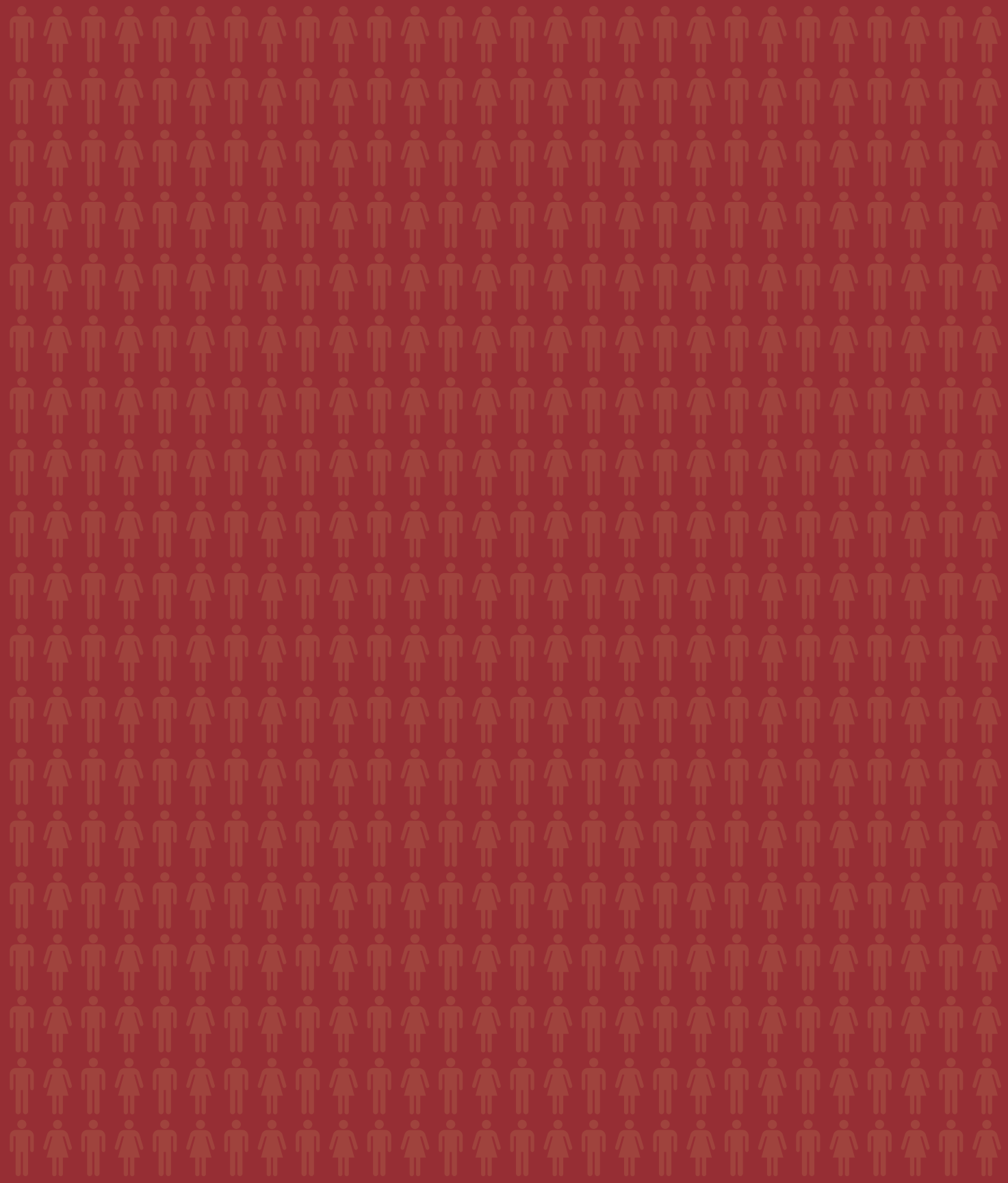

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TOWARD A NEW PARADIGM?

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Preface

The difference between 'theory' and 'practice' is that in theory, there is no difference between theory and practice but, in practice, there is."[1] Until recently, the story of public development banks (PDBs) in Latin America could have been put forward to illustrate this notion because, apart from their theoretical *raison d'être,* in practice they were often associated with generalized dissatisfaction. This was justified by decades of bad management and institutional politicization, which led to distortions in the financial system and significant fiscal losses.

Recent initiatives have led to renewed interest in PDBs as instruments of public policy, given their potential for promoting socioeconomic development, and due to a better performance in recent years. New questions therefore arise. How important are PDBs within financial systems and what was their role in the global financial crisis of 2008–09? What institutional arrangements have enabled certain entities to function better? What do impact evaluations of PDB programs say? Which are the most effective financial and nonfinancial instruments? Can PDBs help solve the challenges of tomorrow, such as adapting to and mitigating climate change?

This second edition of the series *Institutions for People* seeks to answer these questions based on recent evidence from Latin America and the Caribbean. Specifically, the book analyzes the challenges and opportunities for PDBs in the current context, it identifies the institutional factors conducive to achieving their financial and public policy goals, presents an evaluation of the impact of their operations, and proposes the development of new instruments.

In order for a paradigm shift to really occur, PDBs must continue in their efforts toward institutional strengthening and better operational and financial performance and, above all, they must demonstrate their development impact. Experience shows the importance of continuous assessment in order to ensure that institutional arrangements really do lead to improved effectiveness and sustainability over the long term. We trust that the comprehensive and integral approach taken in this book will be of use to both governments and PDBs, as well as to academics and opinion makers interested in achieving appropriate and sustainable development financing for the region.

Ana María Rodríguez-Ortiz
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Inter-American Development Bank

[1] This quote is commonly attributed to Jan L. A. van de Snepscheut, a former computer scientist and professor at Caltech, as well as Yogi Berra, Chuck Reid, William T. Harbaugh, and Karl Marx.

Introduction

It is possible to identify three distinct phases in the evolution of public development banks (PDBs) over the last 60 years. Each phase is associated with the prevailing theories of economic development at the time. Understanding these trends helps put the current situation of PDBs in context.

The first phase originates in the economic development theories of the 1950s and 1960s, which emphasized the importance of investment and advocated direct State intervention in high-priority economic sectors.[1] These theories underlined the need for special institutions, including banks, to channel the necessary capital toward the targeted industries (Gerschenkron, 1962). It was during this phase that PDBs proliferated, especially in Asia and Latin America. Over time, the banks' mandates were extended to provide credit not only to carry out key industrial and infrastructure projects, but also to meet the needs for financing in the rural and housing sectors.

The second phase, which got under way in the 1980s, arose from the perception that PDBs were not meeting their development objectives and, more importantly, they were generating significant fiscal losses and required recurrent recapitalizations.[2] Rationalization of these institutions began within the context of a wave of economic policies oriented toward liberalizing markets and restricting the role of the State in the economy. On the worldwide level, some 250 PDBs were privatized between 1987 and 2003. Other banks were restructured or liquidated based on the premise that a high degree of political interference in financial decision making invariably led to an inefficient distribution of the scarce available resources. In Latin America and the Caribbean (LAC), this process was reflected in the fact that membership of the Latin American Association of Development Financing Institutions (ALIDE) decreased from 171 institutions in 1988 to just 73 in 2003.

The third phase, currently underway, began around the end of the 1990s and the beginning of the new millennium. During this phase, PDBs have resurfaced in the face of continued credit constraints. However, State intervention this time around is justified by theories of institutional economics that hold that public intervention might be beneficial under certain circumstances, especially when it complements or facilitates private sector activities in a cost-effective manner.

[1] In IDB (2005), the State's role in the business of banking is discussed.

[2] Smallridge and de Olloqui (2011) study the most commonly mentioned causes of poor PDB performance, examining the related literature.

This renewed interest has not only been noticeable in developing countries of different regions such as Africa, Asia, and Latin America and the Caribbean, but also in Europe and North America,[3] particularly due to the countercyclical role that the PDBs were asked to perform during the global credit crisis that began in 2008. During the period 2007–09, the credit portfolio of these entities worldwide increased by 36 percent, in contrast to the 10 percent increase posted by commercial banks (De Luna-Martínez and Vicente, 2012).[4] Within this context, it is vital to understand the current trends of PDBs and to analyze the institutional factors that influence their capacity to carry out their mission to promote development in a fiscally responsible manner.

WHAT IS A PDB?

It is important to establish at the outset what a PDB is, and what characteristics distinguish it from public banks in general. A PDB is a state financial institution whose mandate is to promote socioeconomic development by financing specific economic activities, sectors, or segments. This definition contains two key elements: (i) public participation in the financial system, and (ii) the specific goal of providing financing for projects considered valuable for economic development or that are key elements of national public policy.

This book, therefore, does not include the entire gamut of state financial institutions; rather, it is concerned only with those engaged in credit activity that are considered part of the regulated financial system. A distinction is likewise drawn between PDBs and other public banks whose principal activity is commercial. Although both types have traditionally been treated interchangeably for analytical purposes, public commercial banks in general are not considered in this publication owing to the fact that they replicate the functions of private institutions and are focused on making a profit, which makes them inherently different.[5] An exception arises when these institutions have significant credit programs aimed at promoting development.

PDBs, in turn, can be classified according to various criteria, among them whether or not they are deposit-taking; whether their financial operations are conducted directly with their clients (Tier 1) or

[3] For example, in Canada, the Business Development Bank played an important role during the crisis, and new development banks have been proposed in the United States and the United Kingdom, specializing in infrastructure and "green" financing, respectively.

[4] These figures are based on a survey carried out by the World Bank of 90 development finance institutions in 61 countries.

[5] This does not detract from the fact that opinions differ on the significance of these institutions for increasing competition in the financial sector or for providing banking services in underserved areas.

through other financial intermediaries (Tier 2), or according to the kind of economic activity that they support. These dimensions, however, only describe operational aspects. If a public bank has a clear development mandate that predominates in its activities, then it falls within the scope of this analysis.

Table 1 presents a list of the entities that can be considered PDBs in 22 LAC countries. The 56 entities listed include both those that might be considered "pure" PDBs (i.e., those whose exclusive mission is to foster development by financing specific activities, sectors and segments), as well as public commercial banks with a significant amount of development-based activities or programs.

THE *RAISON D'ÊTRE* OF PDBs

Although the PDBs' logic of intervention has evolved over time according to the changing approaches of political economy, it continues to be based on the classic justification of achieving public policy goals by correcting the market failures that lead to credit constraints. In other words, it is based on the concept of the State according to which: (i) some economic sectors or segments are left unattended by private financial intermediaries, and (ii) government financial intermediation can remedy these market failures and thereby achieve a socioeconomic benefit.

Market failures are one of the factors that hinder private intermediaries from evaluating the true creditworthiness of certain economic sectors or segments, thereby leading to credit constraints. The size of the constraint is the difference between the current level of these sectors' access to credit (measured in terms of the amount and cost of credit), and the level that would be reached if the markets granted credit based on their real credit capacity. Credit constraints can be structural or temporary, and in the latter case reveal the existence of economic cycles or crises.

The reluctance or inability of private financial intermediaries to assume certain risks might be due to: (i) the difficulty and high costs of risk evaluation and mitigation; (ii) their own limitations or those imposed by the financial environment (for example, the business model,[6] restricted access to financing, credit limits established according to prudent regulations, and so on), or (iii) the high opportunity costs of allocating capital to certain businesses with less attractive risk-return profiles.

The difficulty and the high costs that intermediaries face when evaluating and mitigating credit risk may be due to information asymmetries, high transaction costs, and the externalities arising from the productive innovation process or from the discovery of new products, processes, and markets.

[6] OECD (2012) cites the importance of changing the banking business model in Latin America, moving from a client relationship-based model to a multi-service model in which the risk represented by a client is measured inflexibly, without considering the projected profitability.

TABLE 1: PUBLIC DEVELOPMENT BANKS AND PUBLIC COMMERCIAL BANKS WITH A SIGNIFICANT NUMBER OF DEVELOPMENT-BASED ACTIVITIES OR PROGRAMS IN LATIN AMERICA AND THE CARIBBEAN

Banco de Inversión y Comercio Exterior	Argentina
Bahamas Development Bank	Bahamas
Banco de Desarrollo Productivo	Bolivia
Banco do Brasil Banco do Nordeste do Brasil Banco Nacional de Desenvolvimento Económico e Social Caixa Económica Federal Banco da Amazonía	Brazil
Banco del Estado Corporación de Fomento de la Producción	Chile
Banco de Desarrollo Empresarial Banco Agrario de Colombia Fondo para el Financiamiento del Sector Agropecuario Financiera del Desarrollo	Colombia
Banco Nacional de Costa Rica Banco Popular y de Desarrollo Comunal Banco de Crédito Agrícola de Cartago Banco Hipotecario de Costa Rica	Costa Rica
Banco Agrícola de la República Dominicana Banco Nacional de la Vivienda	Dominican Republic
Corporación Financiera Nacional Banco del Estado del Ecuador Banco Nacional de Fomento Banco Ecuatoriano de la Vivienda Corporación Nacional de Finanzas Populares y Solidarias	Ecuador
Banco de Desarrollo de El Salvador Banco de Fomento Agropecuario Banco Hipotecario de El Salvador	El Salvador
Crédito Hipotecario Nacional	Guatemala
Banco Hondureño para la Producción y la Vivienda Banco Nacional de Desarrollo Agrícola	Honduras
Development Bank of Jamaica EXIM Bank	Jamaica
Banco Nacional de Comercio Exterior Banco Nacional de Obras y Servicios Públicos Nacional Financiera Fideicomisos Instituidos en Relación con la Agricultura Sociedad Hipotecaria Federal Banco de Ahorro Nacional y de Servicios Financieros Financiera Rural	Mexico

continued ⟶

TABLE 1: PUBLIC DEVELOPMENT BANKS AND PUBLIC COMMERCIAL BANKS WITH A SIGNIFICANT NUMBER OF DEVELOPMENT-BASED ACTIVITIES OR PROGRAMS IN LATIN AMERICA AND THE CARIBBEAN (*continued*)

Banco Produzcamos	Nicaragua
Banco Nacional de Panamá Banco de Desarrollo Agropecuario Banco Hipotecario Nacional	Panama
Crédito Agrícola de Habilitación Agencia Financiera de Desarrollo	Paraguay
Banco de la Nación Corporación Financiera de Desarrollo Banco Agropecuario	Peru
Nationale Ontwikkelingsbank Landbouwbank	Suriname
Agricultural Development Bank	Trinidad and Tobago
Banco de la República Oriental del Uruguay Banco Hipotecario del Uruguay Corporación Nacional para el Desarrollo	Uruguay
Banco de Desarrollo Económico Social	Venezuela

Source: Based on the analysis conducted by Palma and de Olloqui in Chapter 1 of this book.
Note: Regional or subnational entities are not included. With regard to Caribbean countries, information is only included for those that are IDB members.

Information asymmetries occur when a financial intermediary cannot obtain accurate and verifiable information about a client's ability and willingness to repay a loan (or faces high costs when attempting to do so). Given the difficulty of obtaining such information, financial entities cannot adequately calculate the risks of lending to that client and decide not to participate in the market, to charge interest rates that bear no relation to the client's solvency level, or to demand substantial collateral, which represents an inconvenient option for the client.

This often happens in the case of most small and medium-sized enterprises (SMEs), whose financial statements have not been audited and which lack sophisticated internal financial information systems and thus cannot provide reliable financial information. Although credit information companies exist in most LAC countries, most enterprises cannot provide a suitable credit history that would enable these companies to calculate creditworthiness with any degree of precision. Finally, it is often difficult for enterprises, above all in the informal sector, to demonstrate their capacity and willingness to repay loans.

In most LAC countries, systems for guaranteeing financial transactions and overseeing compliance with financial contracts tend to be inefficient, slow, and costly. Furthermore, since the costs of these

processes are the same for both large and small transactions, the relative costs of overseeing contract compliance is higher for SMEs than for large businesses.

High transaction costs are related to problems of economies of scale. High unit costs for conducting and monitoring operations involving small amounts of money mean that intermediaries tend to avoid certain client segments. In order to reduce these costs, specialized financial technologies are required. However, if the total volume of a market is simply too small, these technologies are not viable because the cost of developing them cannot be justified. Furthermore, the financial technologies that have proven to be most efficient require global information networks and secure financial transaction systems, which are found only infrequently in the LAC region.

Finally, the externalities associated with the process of innovation originate in the financial intermediaries' limited capacity to evaluate and put a price on the risk of financing new projects, or at least to do so efficiently. In general, risk is often over-estimated, and the loan is therefore either denied or provided at very high cost to the client.

Market failures, along with the other factors that influence credit constraints, are affected by the institutional and regulatory frameworks within which creditors and borrowers operate, as well as by the general stage of development of the financial system. Therefore, the most efficient measures for resolving the problems mentioned above are systemic in nature. They include regulatory reforms that improve information available to the market and creditor rights, promote innovation and expand collateral options. These reforms include enhancing financial transaction security, strengthening systems to identify, establish, and execute guarantees, and improving the information infrastructure through credit information companies and the presentation of financial statements by businesses. These advances can be achieved through banking regulation reform, by creating a space in which innovative financial products can be developed, and by developing new technologies that circumvent environmental deficiencies, such as mobile banking. Measures that promote greater competition and decentralization in the banking sector would constitute a longer-term solution.

The difficulty in implementing systemic measures creates the need for PDB intervention in order to mitigate problems of access to credit, although they are also justified when they attend to market failures or achieve high social returns. The precise intervention by a PBD to correct a market failure or other factors that restrict credit is (or should be) a function of its mandate and depends also on the sectors or segments of the economy that the government considers to be strategically important. Among the traditionally targeted sectors or segments are the following:

- Infrastructure. The very nature of these investment projects, which are usually large-scale and require long periods of maturity, requires the presence of institutions that can take on longer-term risk and/or access the appropriate financing.

- Rural sector. It is particularly difficult to expand financial services provision for this sector, especially in the case of small producers, given the (i) higher relative risks related to climate, marketing and price uncertainty, concentration of risk according to activity and geographic region, and greater limitations in terms of available collateral and its execution, and (ii) high transaction costs associated with geographical dispersion and the small size of typical productive units.
- SMEs. This socioeconomic segment represents a high credit risk due to weaknesses in terms of capital, collateral, quality of financial information, and management. These weaknesses are associated with the high degree of informality in LAC economies.

In recent years, in response to the latest public policy priorities, PDBs have broadened their scope to include other sectors or segments, among them: renewable energy, climate change mitigation, education, low-income housing, microenterprises, and innovation and production chains in accordance with the new generation of productive development policies. This is because LAC governments have shown interest in achieving greater PDB inclusion in their national economic strategies, particularly in support of efforts aimed at increasing a country's productivity and competitiveness, which has been identified as one of the greatest economic challenges faced by the region (IDB, 2010). Likewise, PDBs mainly participate in investment projects whose social benefits outweigh the commercial ones or that include the adoption of new technologies, whose performance, risks, and limits are still not widely known and have yet to be appreciated by financial intermediaries.

The existence of market failures and other factors that restrict credit is a necessary but insufficient condition for justifying public intervention in the financial system. The same is true of an interest in promoting a particular public policy, even when such a policy may bring clear development benefits in its wake. Governments and PDBs need to analyze the origin and nature of the restriction, quantify the market gap, and conduct a cost-benefit analysis of intervening via a PDB or through other policies or institutions. Furthermore, governments should continue to promote systemic measures that tend to correct credit constraints. Otherwise, market distortions can arise, private actors crowded out, financial losses and fiscal contingencies incurred, or simply a low development impact achieved.

The specific causes that underlie restricted access to credit must be understood. For example, there may be valid reasons why the private sector avoids offering financial services to a certain market segment, and these reasons may continue to be valid even after a public bank has intervened. Or the estimated social benefit arising from a financially unviable project may not justify intervention by a PDB because the cost may outweigh the benefits. To sum up, PDBs are just one of the intervention instruments at the government's disposal, and it is important that the most appropriate one is chosen in order to avoid indiscriminately using any given instrument in response to a crisis or to market imperfections (Rudolph, 2010). Furthermore, market discrepancies are not static; they should be periodically reviewed

and the necessary adjustments made. PDBs' mandates should therefore also be reviewed from time to time.

The justification for PDBs will depend on each country according to the characteristics of its economy and its financial system, as well as its public policy priorities. Thus, there are many institutions and ways of satisfying the demand for financing.

The ways to approach the demand for financing and the provision of alternatives that improve options for access to credit are determined by each institution's characteristics, the reality of the financial and capital markets in which they operate, and the available resources to tailor appropriate financial instruments. Moreover, PDBs must be capable of developing these instruments by integrating them with the tools applied by other public institutions that serve the target sector or segment. This is a serious problem in under-developed LAC countries with weaker institutions, where development programs are widely dispersed.

WHAT IS THE POTENTIAL ADDITIONALITY OF A PDB?

Although inappropriate public intervention through a PDB might cause market distortions and have a displacement effect on private financing, PDBs can also have significant potential to generate additionality in economic sectors and segments that are plagued by credit constraints.

First, by the nature of their basic mandate, PDBs complete markets or contribute to financial penetration and, when acting in response to the factors that restrict credit, they are, a priori, complementary to private sector credit. A frequent problem in the past has been indiscriminate intervention by a PDB, which effectively stunted the development of the private financial sector. In contrast to public banks in general, a PDB must, in principle, foster the development of the financial system (for example, by contributing to the formation of a long-term performance curve in countries where credit for investment is financed by refinancing short-term credits).

Second, PDBs can help to achieve specific development goals. As PDBs have become increasingly involved in the latest priorities of public policy, this mission has become more and more present in their mandates and objectives. This can be achieved not only through financial products, but also by providing pertinent information to the rest of the government about developments in the targeted economic sector and the interventions required.

Third, PDBs can finance investments in sectors with positive externalities, whose social return rates surpass those of the private sector or, at least, where private sector rates of return are still uncertain. In these cases, financing investments is not only a function of financial profitability.

Fourth, PDBs mobilize private resources by sharing project financing and/or risk. They can provide specific knowledge about a certain sector and have standard setting or demonstration effects by raising the visibility of existing opportunities and their possible financial solutions. PDBs can thus encourage private financial intermediaries to take an interest in underdeveloped sectors or segments, thereby lowering the opportunity cost of future transactions.

Fifth, PDBs can stimulate and help structure the demand for financing, interacting with the rest of the public productive development policies designed to stimulate growth in sectors or areas that are strategically important for development, and facilitating the provision of public goods and services. Specifically, PDBs can stimulate the demand for financial services by addressing nonfinancial gaps. By providing technical assistance or other nonfinancial services, they can make viable projects that deserve financing. Although offering entrepreneurial services to SMEs is the most common form of nonfinancial service provision, such services have been extended to nearly all of the abovementioned sectors and segments.

Finally, in periods of liquidity restrictions during financial or economic crises, PDBs can play a countercyclical role by temporarily substituting for private capital. The credit provided by state banks is generally less sensitive to macroeconomic shocks than that provided by private banks, which suggests that PDBs can be useful in carrying out monetary policy (Micco and Panizza, 2006). In order to effectively fulfill this mission, PDBs should be appropriately sized and, preferably, operate in Tier 1. Even so, intervention in times of crisis presents additional challenges, given that the capacity to provide services and deliver products to target sectors must be maintained before and after the crisis, possibly without these services or resources being used. This situation has been dubbed the "Sleeping Beauty Syndrome" (Stephens, 1999). Likewise, the temporary nature of the program should be maintained to prevent it from becoming permanent and discouraging private financial activity.

RELEVANCE AND CONTEXTUALIZATION OF THE BOOK'S CONTENT

PDBs in Latin America and the Caribbean have become more important in recent years, both in terms of assets and in the expanded range of activities aimed at satisfying the demands for financing to implement the strategic objectives of the region's governments. This process has been accompanied by improvements in a number of institutions, particularly in the areas of administration and financial viability, which in turn have enabled them to increase their activities. This does not alter the fact that failed institutions still exist, or that unsustainable governance practices are still a feature of numerous PDB.

Chapter 1 of this volume takes a closer look at this recent evolution. Specifically, based on financial information and surveys conducted by the IDB, it analyzes the reasons that lie beneath the growth of

PDBs in LAC since the early 2000s and examines their performance in the recent economic and financial contexts, as well as some trends in approaches taken by governments in the region.

Within a context of greater PDB intervention, in which PDB mandates continue to be extended, it is important to identify those institutional factors that lead to better results. Chapter 2 describes the essential institutional factors that would enable PDBs both to be financially sustainable and to fulfill their public policy mandate.

Although financial results monitoring has improved, little is known about the effectiveness of PDBs in achieving their public policy goals or, in other words, their development impact. Chapter 3 tackles this subject, offering guidelines for designing good PDB impact evaluations and summarizing the knowledge gained from the few existing rigorous impact evaluations of PDB programs and other programs related to their activities.

The instruments required to satisfy new and increasingly complex demands go beyond the traditional PDB mechanisms for intervening in the credit market. There is room for new ways of operating that have the potential to achieve greater value added and that can more directly address the heightened risk in investing in the targeted sectors and penetrating underserved markets. In part, these problems arise from structural deficiencies of the financial system associated with regulatory frameworks that are either insufficient or that discourage private credit markets from pursuing a more dynamic strategy to integrate excluded sectors or segments.

Chapters 4 and 5 examine two intervention instruments not traditionally associated with PDBs: partial credit guarantees (Chapter 4) and productive development services (Chapter 5). Both chapters focus on access to financing for the productive sector, particularly for SMEs, given that LAC countries have focused mainly on this sector, even though the instruments are equally applicable to other sectors, such as infrastructure, housing or so-called "green" financing. Given the region's problems of incomplete information and insufficient creditor rights regulation, partial guarantee schemes are crucial for tackling the problems caused by risk aversion on the part of private financial intermediaries.

The number of schemes in the region has increased notably, and the trend is clearly on an upward curve (Pombo, Molina and Ramírez, 2013). In Chapter 4, the advantages of partial credit guarantees are explained in terms of leveraging public resources and low operating costs, and guidelines are provided for proper scheme design and management. This may be the most appropriate instrument to enable PDBs to help address financial market failures, apart from being efficient from a fiscal standpoint.

The other risk mitigation instrument is nonfinancial service (NFS) provision, which not only improves the eligibility of a project or firm and its capacity to repay, but also reduces information asymmetries, thereby altering the perception of risk associated with financing certain operations. In this way, a market failure that might originate on the demand side of financial services can be addressed. In the case of SMEs, for example, productive development services are focused on improving the productive capacities

of businesses and, by extension, their demand for and access to financial services. Likewise, in the public infrastructure and nonrenewable energy sectors, there have been NFS experiences to support project design and structuring in order to make projects more viable and bankable, in view of the fact that they entail risks of a diverse nature (e.g., financial, legal, environmental and technical), and at various stages (e.g., construction and operation).

PDBs in Latin America and the Caribbean have begun to make incursions into NFS provision or to establish linkages with the public or private agencies that provide them, complementing government initiatives in this area. Chapter 5 analyzes the results of surveys and of some existing impact evaluations in order to highlight the growing interest that PDBs in the region have shown in this type of service and their potential to complement finance provision interventions from the demand side.

One sector that epitomizes the new opportunities and challenges faced by PDBs is so-called "green" financing. The lack of resources devoted to financing investment projects aimed at mitigating and adapting to climate change is one of the most significant market failures in the world at present. This has attracted the attention of many governments and made the issue a public policy priority. The sector is complex, however, due to the extended project maturity periods and lack of knowledge about clean technologies on the part of financial institutions. This puts PDBs in a position to demonstrate to the financial system how to finance projects that are complex but potentially profitable.

Chapter 6 examines the role of PDBs in financing climate change mitigation and helps to summarize the themes of previous chapters. This constitutes an important example of the potential new paradigm that these institutions can now fulfill.

In conclusion, PDBs have always had significant potential to generate additionality in financial systems and to promote socioeconomic development. Whether or not this potential is realized and a new paradigm of effective and efficient public intervention is achieved will depend on how well PDBs evolve institutionally in the new context in which they now find themselves, remembering always the lessons of past experiences.

Fernando de Olloqui

BIBLIOGRAPHICAL REFERENCES

De Luna-Martínez, J. and C. Vicente. 2012. "Global Survey of Development Banks." Washington, DC: World Bank.

Gerschenkron, A. 1962. Economic Backwardness in Historical Perspective: A Book of Essays. Cambridge, MA: Harvard University Press.

IDB (Inter-American Development Bank). 2005. Desencadenar el crédito: cómo ampliar y estabilizar la banca. Economic and Social Progress Report (IPES). Washington, DC: IDB.

———. 2010. The Age of Productivity: Transforming Economies from the Bottom Up. Development in the Americas (DIA). Washington, DC: IDB.

Micco, A. and U. Panizza. 2006. "Bank Ownership and Lending Behavior." Economics Letters 93(2): 248–54 (November).

OECD (Organization for Economic Cooperation and Development). 2012. "Financing SMEs in Latin America." In: Latin American Economic Outlook 2013: SME Policies for Structural Change. Paris, France: OECD.

Pombo, P., H. Molina, and J. N. Ramírez. 2013. "Clasificación de los sistemas de garantía desde la experiencia latinoamericana." Technical Note No. IDB-TN-503. Washington, DC: IDB.
Available at http://www.iadb.org/en/publications/publication-detail,7101.html?id=66786.

Rudolph, H. P. 2010. "State Financial Institutions: Can They be Relied on to Kick-Start Lending?" Crisis Response: Public Policy for the Private Sector, Note 12. Washington, DC: World Bank.

Smallridge, D. and F. de Olloqui. 2011. "A Health Diagnostic Tool for Public Development Banks." Technical Note No. IDB-TN-225. Washington, DC: IDB.
Available at http://www.iadb.org/en/publications/publication-detail,7101.html?id=6006.

Stephens, M. 1999. "The Changing Role of ECAs." IMF Research Paper. Washington, DC: International Monetary Fund.

CHAPTER 1

Overview and Recent Evolution of Public Development Banks

Fernando de Olloqui and Cristián Palma Arancibia

- The substantial increase in assets held by public development banks (PDBs) in the Latin American and Caribbean (LAC) region over the last decade has been accompanied by institutional reforms aimed at improving PDB management. This, combined with a strong macrofinancial context in the majority of countries of the region, has led to more positive financial results.
- After assuming the role of the countercyclical instruments during the global financial crisis of 2008–09, PDBs currently focus on meeting the new challenges and opportunities that have emerged from expanded mandates. This implies the further strengthening of actions that have enabled PDBs to improve their performance.

PDBs IN LATIN AMERICA AND THE CARIBBEAN: A SNAPSHOT

The Importance of PDBs in Financial Systems

The success of the repositioning of PDBs in the LAC region—a strategy to address some of the market gaps in productive sectors, as well as in business and personal segments of the economy—is reflected in the substantial increase in these institutions' assets, particularly since the middle of the last decade.[1] In 2011, total PDB assets surpassed US$1.4 trillion, a sum equivalent to almost 25 percent of the region's gross domestic product (GDP).[2]

In this context, it becomes important to examine recent PDB performance, as well as the possible trends in their operations, the reason for which a database was developed covering the period 2000–10. The database has been put together using data provided by the Latin American Association of

[1] According to the definitions included in the Introduction, this chapter refers to PDBs in general: both those considered to be "pure" PDBs (in other words, those with an exclusive mandate is to promote socioeconomic development by financing specific sectors), as well as public commercial banks that carry out significant activities or programs with development in mind. Distinction is drawn between these two concepts whenever the analysis calls for it. For the financial analysis, a representative sample is examined, according to the available data from institutions, wherein some regional or subnational banks in Argentina and Brazil are also included.

[2] GDP in dollars at current values (World Bank). If Brazil is removed from the data, assets represent 7 percent of GDP.

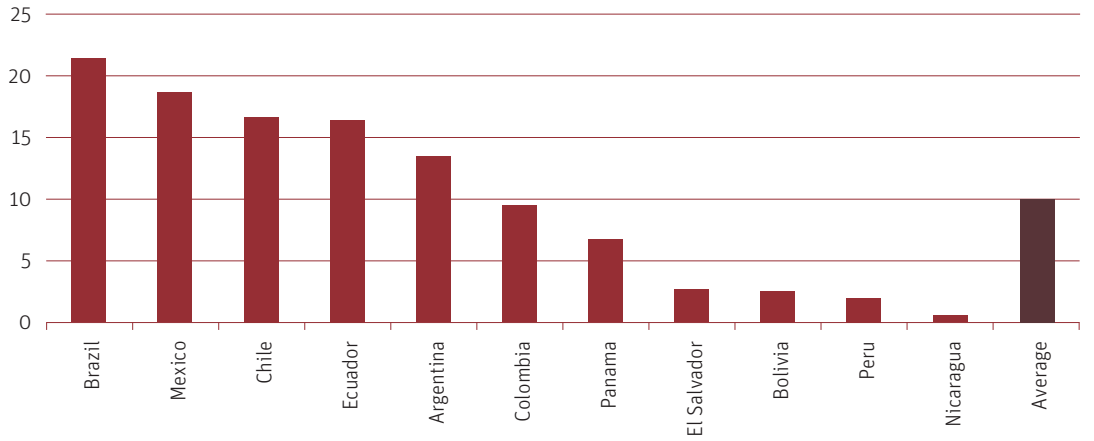
TABLE 1.1. EVOLUTION OF PDB ASSETS AND LOANS
(IN PERCENT)

COUNTRY	PUBLIC DEVELOPMENT BANK ASSETS		PUBLIC DEVELOPMENT BANK LOANS		TOTAL FINANCIAL SYSTEM LOANS	
	AVERAGE ANNUAL VARIATION. PERIOD 2000–05	AVERAGE ANNUAL VARIATION. PERIOD 2005–10	AVERAGE ANNUAL VARIATION. PERIOD 2000–05	AVERAGE ANNUAL VARIATION. PERIOD 2005–10	AVERAGE ANNUAL VARIATION. PERIOD 2000–05	AVERAGE ANNUAL VARIATION. PERIOD 2005–10
Argentina	–8.4	13.1	–15.1	18.7	–14.0	17.4
Bolivia	9.1	–8.2	10.6	–8.3	–7.1	16.7
Brazil	5.9	27.6	1.8	34.9	11.1	30.7
Chile	2.9	22.1	6.2	13.3	10.8	12.3
Colombia	12.8	16.1	15.5	17.8	6.1	17.9
Costa Rica	4.4	12.2	9.5	23.7	12.9	19.8
Dominican Republic	4.6	12.7	9.4	24.4	1.3	0.9
Ecuador	7.0	26.5	13.8	33.9	21.5	16.2
El Salvador	–0.9	4.6	–6.4	1.2	–2.9	3.2
Guatemala	28.8	3.8	27.5	16.7	N/A	12.4
Honduras	25.7	13.4	8.0	27.9	N/A	N/A
Mexico	–2.6	4.0	–3.7	–3.3	–0.1	9.7
Nicaragua	–25.5	13.3	N/A	N/A	N/A	N/A
Panama	1.6	11.1	6.4	3.3	1.2	11.6
Paraguay	–3.8	17.1	–13.9	12.3	N/A	N/A
Peru	–5.3	18.6	–20.1	28.1	1.7	25.1
Uruguay	–5.8	12.6	–7.3	15.2	–17.1	16.0
Simple average	3.0	13.0	2.6	16.2	8.7	15.0

Source: Authors' elaboration, based on the ALIDE database (Databank) and financial information provided by the banks included in the review and by LAC financial system regulators.
N/A = Data unavailable.

Development Financing Institutions (ALIDE), as well as financial information provided by the banks reviewed in the study and LAC financial system regulators.

FIGURE 1.1: PURE PDB PARTICIPATION IN THE FINANCIAL SYSTEM, 2010
("PURE" PDB LOANS AS A PERCENTAGE OF TOTAL LOANS IN EACH COUNTRY)



Source: Authors' elaboration, based on the ALIDE database (Databank) and financial information provided by the banks included in the review and by LAC financial system regulators.

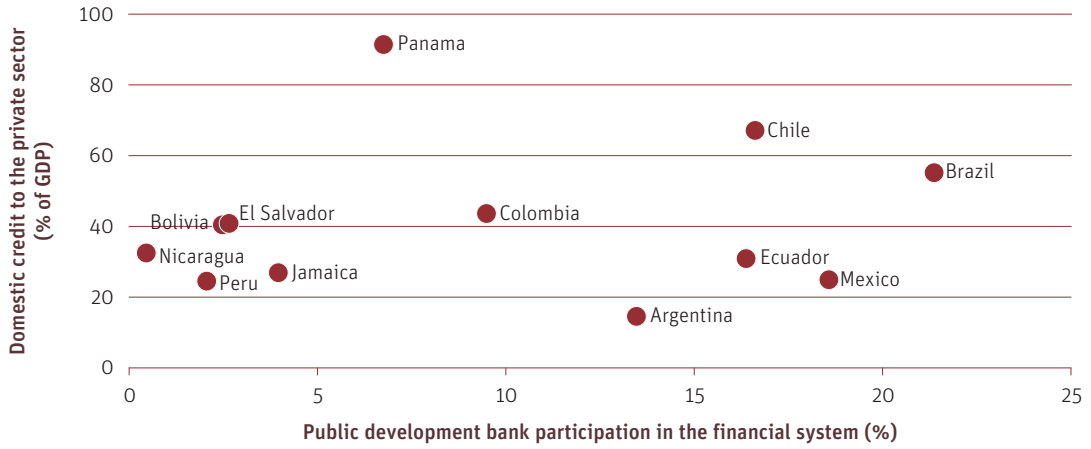
On average, growth in PDB loans between 2005 and 2010 was similar to the growth observed in the overall banking system (Table 1.1), and the average PDBs' share of total loans in each country represented approximately 10 percent in 2010. This share reflects significant differences between countries, as shown in Figure 1.1, where Brazil stands out as the country with the highest relative PDB share of total loans in its financial system, while Nicaragua is the country with the lowest relative share. When the evolution of the share of total financing between the years 2000 and 2010 is examined (Table 1.2), it becomes apparent that, whereas in some countries the importance of the PDBs increased slightly (among them, Argentina, Chile, and Colombia), it fell markedly in others (e.g., Brazil and Mexico). It is worth mentioning that, as a whole, the "pure" PDBs (those

TABLE 1.2: VARIATION IN FINANCIAL SYSTEM PARTICIPATION BY PURE PDBS, 2000–10
(IN PERCENT)

DESCRIPTION	COUNTRIES
Countries with greatest growth	Chile (3.7) Colombia (1) Argentina (1)
Countries with greatest reduction	Mexico (–14.7) Brasil (–9.7) Peru (–4.6) El Salvador (–2.0)

Source: Authors' elaboration, based on the ALIDE database (Databank) and financial information provided by the banks included in the review and by LAC financial system regulators.

FIGURE 1.2: FINANCIAL DEEPENING OF PRIVATE CREDIT AND PDB PARTICIPATION



Source: World Bank (2010).

without commercial purpose) in the LAC region represent 19.4 percent of the regional banking system (weighted average), which is explained by Brazil's greater relative weight.

This average participation is below the global average, which is approximately 25 percent of all assets, reaching 30 percent in the European Union (EU) (Schmit, 2011), and is even greater in the BRIC (Brazil, Russia, India, and China) countries. It is worth explaining, however, that on an individual level, PDBs tend to represent a small part of their respective financial systems in 80 percent of the cases, with a figure of lower than 3 percent of assets (De Luna-Martínez and Vicente, 2012).[3]

In principle, PDB participation in the financial system should become less significant the more developed the system is. However, comparing the PDB share with data on financial deepening (reflected as domestic credit to the private sector, as a percentage of GDP) as a proxy variable for financial system development, the result shows no significant relationship (Figure 1.2).

PDB Financial Indicators

The recent evolution of PDB financial indicators suggests that progress has been made toward greater financial sustainability. This progress is reflected in the improvement in profits, measured over assets and

[3] Figures based on a World Bank survey of 90 financial development institutions in 61 countries.

TABLE 1.3: EVOLUTION OF PDB RESULTS INDICATORS
(IN PERCENT)

COUNTRY	PROFITS/ASSETS (ROA)			PROFITS/EQUITY (ROE)			PROFITS/INCOME		
	2000	2005	2010	2000	2005	2010	2000	2005	2010
Argentina	0.23	2.74	2.78	–0.38	15.69	22.15	2.73	24.50	23.16
Bolivia	2.08	0.90	2.19	8.99	5.54	6.27	20.31	13.15	35.97
Brazil	1.42	0.66	5.24	10.13	–0.56	23.73	6.72	5.60	44.22
Chile	4.22	1.54	1.64	8.60	36.68	8.51	24.68	19.55	11.21
Colombia	–1.72	–2.02	1.85	–0.74	4.87	16.46	–10.98	12.33	15.53
Costa Rica	0.94	4.29	1.62	4.58	21.30	7.98	17.98	27.89	35.34
Dominican Republic	1.35	4.91	3.19	7.08	6.82	10.03	13.04	33.80	55.00
Ecuador	–3.73	1.93	1.29	–31.35	1.00	5.85	–18.34	12.29	47.48
El Salvador	–4.59	2.90	0.63	–56.13	24.86	2.52	–33.26	33.76	2.73
Guatemala	0.88	2.79	2.84	10.83	49.96	25.10	6.02	30.75	33.63
Honduras	8.71	N/A	2.43	15.18	N/A	3.02	55.06	N/A	39.49
Mexico	–0.93	0.37	1.73	–25.43	–3.21	9.53	–6.22	4.94	31.22
Nicaragua	5.25	N/A	4.43	8.40	N/A	43.19	36.82	N/A	N/A
Panama	3.49	2.82	1.67	23.45	19.84	18.10	43.50	48.81	N/A
Paraguay	–0.53	0.40	2.19	–4.45	5.06	21.68	–3.19	2.45	N/A
Peru	0.29	0.71	1.08	1.02	4.22	2.01	1.25	–0.01	6.70
Uruguay	–3.35	–1.64	1.50	1.97	17.04	14.40	–41.69	–8.05	4.65
Simple average	0.82	1.55	2.25	–1.07	13.94	14.15	6.73	17.45	27.60

Source: Authors' elaboration, based on the ALIDE database (Databank) and financial information provided by the banks included in the review and by LAC financial system regulators.

ROA = Return on Assets.
ROE = Return on Equity.
N/A = Data unavailable.

equity (Table 1.3), including those PDBs providing some Tier 1 services (Table 1.4), which might be attributable to the greater margin they are able to assign to their loan operations.

It is worth noting that the results are more positive for diversified PDBs; in other words, those whose mandate are not restricted to single sectors or sole economic activities (Table 1.5).

TABLE 1.4: EVOLUTION OF PDB RESULTS INDICATORS, ACCORDING TO OPERATIONAL MODE *(IN PERCENT)*

MODE OF OPERATION	PROFITS/ASSETS (ROA)			PROFITS/EQUITY (ROE)			PROFITS/INCOME		
	2000	2005	2010	2000	2005	2010	2000	2005	2010
Tier 1	–0.41	0.83	2.52	–3.87	10.27	18.06	–2.66	13.86	26.26
Tier 2	1.07	1.92	1.84	–0.01	7.58	9.06	10.14	13.87	18.82
Tier 1 and Tier 2	0.91	1.70	3.60	–0.29	8.65	14.97	6.70	17.01	48.20

Source: Authors' elaboration, based on the ALIDE database (Databank) and financial information provided by the banks included in the review and by LAC financial system regulators.

ROA = Return on Assets.
ROE = Return on Equity.

TABLE 1.5: EVOLUTION OF PDB RESULTS INDICATORS, ACCORDING TO SECTOR-BASED ORIENTATION *(IN PERCENT)*

SECTOR-BASED ORIENTATION	PROFITS/ASSETS (ROA)			PROFITS/EQUITY (ROE)			PROFITS/INCOME		
	2000	2005	2010	2000	2005	2010	2000	2005	2010
Multisector banks	1.16	2.17	3.01	2.59	10.92	17.70	9.10	19.15	32.12
Specialized banks[a]	–1.82	–0.11	1.87	–12.73	6.40	10.33	–12.55	7.63	25.33

Source: Authors' elaboration, based on the ALIDE database (Databank) and financial information provided by the banks included in the review and by LAC financial system regulators.
[a] This category includes the banks whose services are oriented exclusively toward agriculture, housing, infrastructure, or external trade.

ROA = Return on Assets.
ROE = Return on Equity.

For their part, in 2000 and 2010, various indicators of pure PDB profits—in other words, those whose specific mandate is development—were superior to the indicators whose main focus was on commercial activity (Table 1.6).

When comparing PDB indicators for Return on Equity (ROE) with the performance of sovereign debt bonds in their respective countries (Figure 1.3), it is noticeable that in 2005, PDBs posted a better performance than sovereign debt bonds in two of the countries in the sample, and toward the end of the decade, in four of them. This indicates that PDB performance, in general, surpasses the opportunity cost of the public resources allotted to enable them to function, even before the social utility generated in

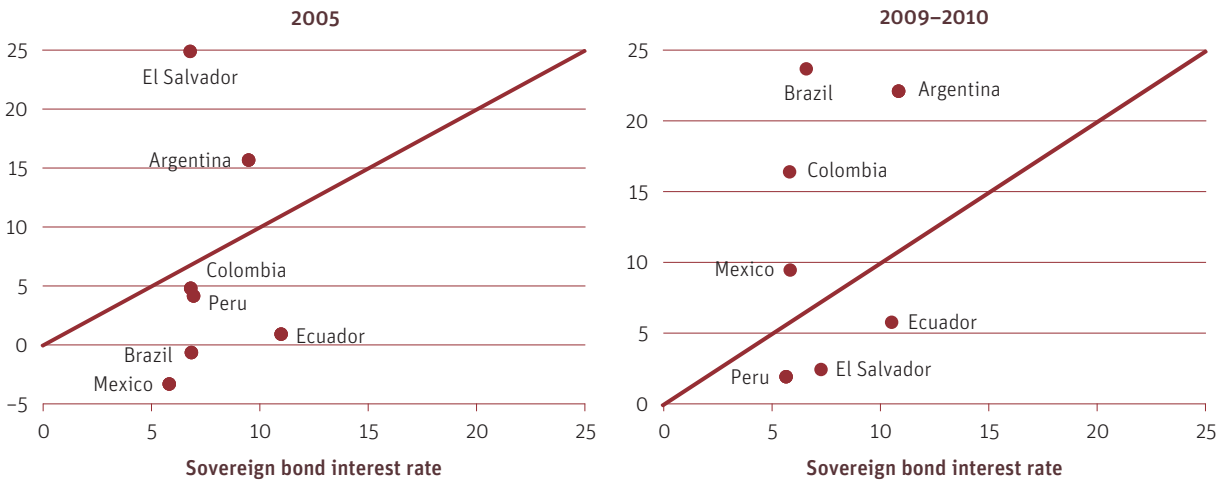
TABLE 1.6: EVOLUTION OF PDB RESULTS INDICATORS, ACCORDING TO FOCUS OR CORE ACTIVITY *(IN PERCENT)*

CORE OR MAIN ACTIVITY	PROFITS/ASSETS (ROA)			PROFITS/EQUITY (ROE)			PROFITS/INCOME		
	2000	2005	2010	2000	2005	2010	2000	2005	2010
Pure PDB	0.71	1.04	3.00	–2.22	6.43	15.06	5.78	14.63	33.35
Commercially-based PDB	–0.52	1.72	2.05	–2.40	14.20	15.79	–3.13	14.98	23.77

Source: Authors' elaboration, based on the ALIDE database (Databank) and financial information provided by the banks included in the review and by LAC financial system regulators.

ROA = Return on Assets.
ROE = Return on Equity.

FIGURE 1.3: PDB ROE AND INTEREST RATES ON SOVEREIGN BONDS, 2005 AND 2009–10



Source: Authors' elaboration, based on the ALIDE database (Databank) and on financial information provided by the banks included in the review, by LAC financial system regulators, and by Bloomberg. Sovereign debt performance based on the J.P. Morgan Emerging Market Bond Index (EMBI).

ROE = Return on Equity.

pursuit of their mandate is taken into account. Furthermore, it must be remembered that, in contrast to private banks, PDBs have to allocate resources toward riskier projects, without necessarily engendering

TABLE 1.7: EVOLUTION OF PDB BALANCE SHEET INDICATORS

COUNTRY	LIABILITY/EQUITY (TIMES)			LIABILITY/ASSETS (PERCENTAGE)			EQUITY/ASSETS (PERCENTAGE)		
	2000	2005	2010	2000	2005	2010	2000	2005	2010
Argentina	9.41	12.54	9.16	84.65	77.10	73.83	15.36	23.58	15.78
Bolivia	3.32	5.18	1.86	76.84	83.81	65.03	23.16	16.19	34.97
Brazil	11.46	8.24	7.59	85.13	78.95	67.71	14.87	20.94	27.07
Chile	7.62	11.74	9.69	56.82	50.96	49.21	43.18	6.32	51.45
Colombia	6.38	6.47	7.93	69.82	80.08	86.04	30.18	19.90	14.21
Costa Rica	9.61	5.62	4.41	78.54	71.34	69.43	21.46	21.40	30.02
Dominican Republic	4.84	0.39	N/A	77.06	28.07	N/A	22.94	71.98	32.20
Ecuador	3.79	1.52	2.29	69.37	53.88	69.36	30.63	46.12	30.64
El Salvador	6.47	6.10	5.26	81.69	81.61	77.25	18.29	17.51	22.09
Guatemala	10.35	10.29	7.82	90.38	57.47	89.84	9.62	5.49	11.18
Honduras	0.74	1.25	0.24	42.63	55.47	19.58	57.37	44.53	80.28
Mexico	18.45	16.93	12.63	92.98	77.61	76.25	7.02	22.32	23.99
Nicaragua	0.60	0.09	14.01	37.52	N/A	N/A	62.48	N/A	10.26
Panama	5.72	6.02	10.43	85.13	85.52	91.02	14.87	14.21	8.73
Paraguay	7.48	11.74	6.82	88.21	92.15	84.87	11.79	7.85	12.44
Peru	2.54	0.77	N/A	71.74	33.52	N/A	28.26	66.48	61.54
Uruguay	5.83	N/A	N/A	82.65	95.54	N/A	17.35	4.47	10.81
Simple average	6.74	6.55	7.15	74.77	68.94	70.73	25.23	25.58	28.10

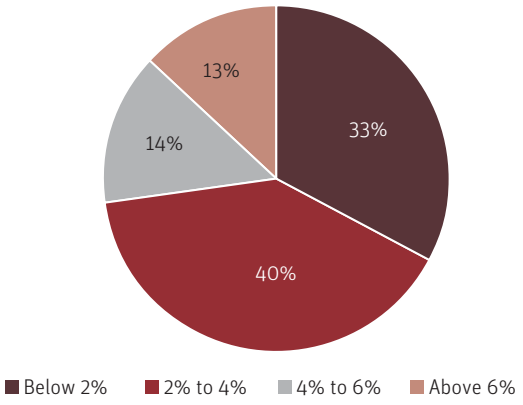
Source: Authors' elaboration, based on the ALIDE database (Databank) and financial information provided by the banks included in the review and by LAC financial system regulators.

N/A = Data unavailable.

greater profitability, given that their goal is not to maximize profits but, rather, to guarantee a minimum return that enables capital conservation and growth.

PDBs have shown themselves to be conservative when it comes to leveraging (Table 1.7). The average of the PDB Equity/Assets indicator in 2010 was 28 percent whereas, in general, for commercial banks, this indicator oscillates between 10 percent and 12 percent. According to a World Bank survey of 90 financial development institutions (De Luna-Martínez and Vicente, 2012), the majority of institutions

FIGURE 1.4 LOAN DEFAULT RATE IN PDB PORTFOLIOS, 2010
(IN PERCENT)



Source: Authors' elaboration, based on the ALIDE database (Databank) and financial information provided by the banks included in the review and by LAC financial system regulators.

(80 percent) finance themselves via the market, which is probably facilitated by the fact that 69 percent of PDBs have an explicit state debt guarantee. Only 36 percent of the institutions capture deposits from the public, and these are generally public commercial banks or those specializing in housing (which, by nature, must attract public savings), or PDBs whose goal is financial inclusion—in other words, providing coverage for geographically-isolated areas (e.g., the State Bank of Chile and various rural and agricultural banks). In general, there is a noticeable political will not to put public savings at risk.

Another key indicator that reflects the degree of PDB solvency is portfolio quality. In this sense, the loan default rates indicate that in most countries, PDBs manage healthy portfolios, despite the fact that, by their very nature, they assume risks that the private sector is either unwilling or incapable of taking on (Figure 1.4).

AN ANALYSIS OF THE RECENT EVOLUTION OF PDBs

The overview of the financial indicators described at the beginning of this chapter indicate that, in general, significant progress has been made toward greater efficiency in PDB operational and financial management in the LAC region. This is not to deny, however, that there are public banks in the region with serious problems. In most cases, these problems are linked to sector-based specialization, particularly in the agricultural sector and, to a lesser degree, in the housing sector, as well as to the lower level of general institutional robustness found in their respective countries.

This evolution has benefited from the region's more positive overall macroeconomic and financial situation. On the one hand, there has been greater fiscal responsibility, reflected in the fact that total public debt in LA-7 (Argentina, Brazil, Chile, Colombia, Mexico, Peru, and Venezuela) decreased from levels close to 60 percent of GDP in 2002 to 37 percent in 2009, which has led to more orderly management of PDBs by their principal shareholder. On the other hand, greater financial system development in LAC countries has facilitated PDB expansion. Domestic credit to the private sector increased from 25 percent

of GDP at the beginning of the 2000s to 44 percent in 2010 (World Bank, 2010). Likewise, there have been significant steps forward in prudent regulation and oversight of the financial systems to which PDBs are subject.

The positive evolution shown by PDBs from the end of the 1990s, onwards, is also in response to greater interest by governments and the institutions themselves, to improve their financial sustainability. This has been in reaction to decades of mismanagement, institutional politicization and, finally, fiscal losses, which meant their efficiency was called into question. In turn, the urge to strengthen PDBs was in response to the goal of achieving greater financial deepening and to fulfill diverse development goals, especially within a context wherein private credit provided to certain sectors—considered economically or socially important—had been limited.[4]

With these objectives in mind, various PDB institutional reforms were carried out in the LAC region.[5] First, at the end of the 1990s and beginning of the new millennium, various countries (such as Colombia, El Salvador, Mexico, Paraguay, Peru, and Nicaragua) implemented legal reforms, either to create Tier 2 institutions or to transform Tier 1 banks into Tier 2 institutions, leading to more efficient and less risky operations. Nearly 45 percent of the institutions now offer Tier 2 services (22.2 percent operate on the first and second tier, while 22.2 percent operate, exclusively, on the second tier).

Second, instruments were adopted to achieve improved standard banking management, such as risk management systems (which has resulted in reduced loan default rates) or new technologies for operational processes. The latter, in addition to the process of moving toward the second tier, led to nonoperating costs (principally administrative costs) showing a downward trend, in that total expenditure fell from 93 percent of total revenue in 2000 to 74 percent in 2010.

Third, efforts were made to limit PDB mandates to address specific market gaps, instead of open mandates, in order to maintain a healthier financial situation and to limit fiscal contingencies. It is estimated that 95 percent of PDB development plans are aimed at correcting market failures and 75 percent are aimed at complementing a public policy, while only 40 percent have the objective of improving credit conditions within financial systems (De Olloqui and Palma Arancibia, 2012). Furthermore—and to a greater or a lesser degree, according to the country and the institution—gradual improvements have been made to the frameworks of corporate governance, although the extent of their effectiveness is still uncertain (see Chapter 2).

[4] For example, the small- and medium-sized enterprises (SMEs) in the LAC region face credit shortages. According to a recent study, up to 40 percent of the region's SMEs state that they need financing, but cannot obtain it (IFC, 2010). Furthermore, less than 15 percent of domestic credit in the region goes to SMEs (OECD, 2012).

[5] Chapter 2 examines further the key institutional aspects needed for PDB success, some of which might have influenced the improvement in results observed up until now.

Fourth, PDBs have been subject to regulation and supervision by the financial authorities, either legally (the majority), or else in practice. Eighty-eight percent of PDBs observe the same prudential financial rules as their commercial peers and/or are supervised. The rest do not, as they are considered to be agents of development, although some approximation to the aforesaid rules is reflected in their regulations (De Luna-Martínez and Vicente, 2012). Likewise, 68 percent of PDBs have a local credit rating.

As a consequence of these reforms, and in contrast to previous decades, fewer and fewer PDBs receive resources from the public budget in order to improve their capitalization, and there have been less cases of intervention in PDBs for questions of insolvency. Moreover, in some cases the government has withdrawn equity from the PDBs in order to finance the budget or, whenever it has injected capital, it has looked to increase the activities of banks (as in the international crisis of 2008), or used the fiduciary capacity of banks to transfer resources for specific ends.

The general positive trends of PDBs during the 2000s encouraged various LAC governments to call on these institutions to perform a critical role during the global financial crisis that started in 2008. In 2010, in order to better understand the positioning strategies of the region's PDBs during this period, and to have a more representative quantitative and qualitative measurement of their activity, the Inter-American Development Bank (IDB) carried out a survey (hereafter, IDB Survey 2010).[6] The survey confirmed that PDBs had become vehicles for implementing countercyclical policies, due to their experience in using a wide range of instruments to address the financing needs of both social and productive actors.

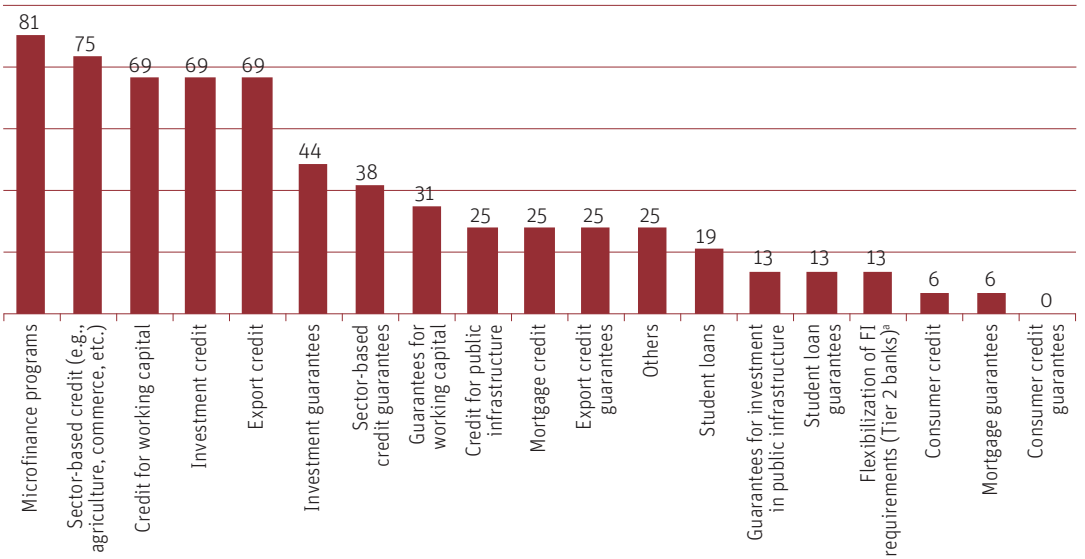
This higher capacity to react was manifested in the development and consolidation of networks to channel credit resources in the case of Tier 2 PDBs, and in greater public bank presence in the case of Tier 1 institutions. In this context, the focus of PDB intervention was based on traditional operational financing, both in the short term—as working capital for small- and medium-sized enterprises (SMEs), exporting businesses, and microenterprises—as well as over the longer term. Likewise, on a secondary level, guarantee schemes were strengthened, which, within the context of higher relative risk for credit operations, proved to be an instrument to sustain credit flows toward the productive sectors.[7]

During the period 2007–09, there was an increase of medium- and long-term operations, equivalent to 5.9 percentage points in relation to total credit (increasing from 68.1 percent to 74.0 percent) and to 36.2 percent on average, annually. This represents a significant advance in terms of the focus of the development banks' credit operations, given the importance of long-term credit for investing in improvements in productivity and competitiveness. Meanwhile, despite their relative decrease, short-term loans

[6] The IDB Survey 2010, supported by ALIDE, was conducted during 2010 and applied to 30 PDBs in 14 LAC countries, which, together, represent more than 90 percent of all PDB assets in the region. For more information, see De Olloqui and Palma Arancibia (2012).

[7] Chapter 4 addresses this theme in greater detail.

FIGURE 1.5: INSTRUMENTS USED BY PDBS DURING THE CRISIS
(IN PERCENT)



Source: IDB Survey 2010.
[a] FI = Financial intermediary

increased by 19 percent on average, annually, thereby supporting the financing of working capital, which is fundamental to the sectors that experience the greatest difficulty in accessing credit (e.g., SMEs).

Another interesting result of the interventions carried out during the 2008–09 global crisis is that, despite the growth in PDB portfolios in the LAC region, there has not been a significant decline in their quality, due in part to the rapid economic recovery by most countries in the region. This should be seen in light of the fact that the countercyclical role performed by PDBs during the crisis should have brought greater risk along with their new managed portfolios. If this situation is to be maintained, however, it is urgent that financial supervisors in the different countries carry out rigorous monitoring of the aforesaid credit and even demand additional funds if the credit shows signs of deteriorating.

Public institutions were able to develop an active credit policy by injecting supplementary government resources, as well as by issuing debt. Central and federal governments provided 59 percent of the funds, financial institutions 12 percent, and the local financial market 24 percent. An estimated 35 percent of PDBs did not receive new funding. This was possible because the region's financial and fiscal starting

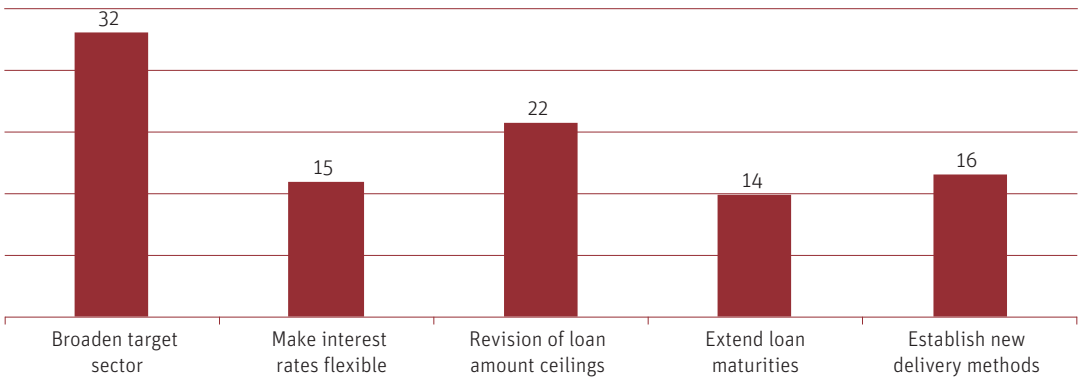
point was clearly more solid than in other similar past situations or crises, as previously mentioned, thus enabling government efforts to be concentrated on supporting the private productive sector or public infrastructure, rather than on buttressing the sustainability of financial institutions, whether private or public.

Although the effectiveness of these institutions in reactivating the economy is yet to be appraised (see World Bank, 2013), it is significant that the institutional role of PDBs, which focuses on addressing failures in the financial market, provided a point of reference for the range of instruments applied. Therefore, according to PDB responses to the IDB Survey 2010, the crisis not only altered, but even accelerated, the implementation of previously-defined strategic plans—or, rather, meant that an institutional matrix, which was previously defined and tested, was adapted to the needs of increasing amounts to new customers (Figure 1.6). Likewise, in general, PDBs declared that the programs were established or expanded for a limited time period, which was essential to ensure that private credit not be crowded out and that program effectiveness be measured (Figure 1.7). Some banks, however, may have maintained their level of activity after the crisis in the sectors or segments that they substituted for private credit during the credit squeeze.

A NEW CONTEXT

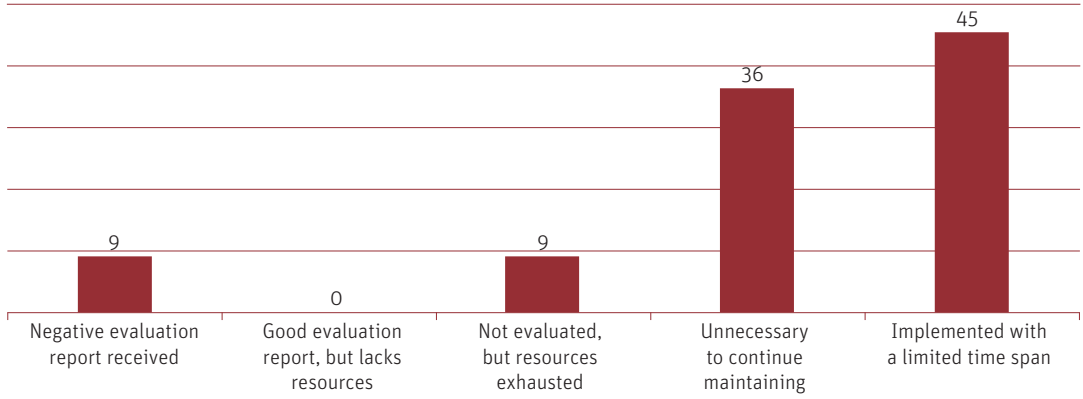
Whereas 10 years ago there was a need to ensure PDB financial sustainability, once this objective was achieved to a greater or lesser degree, the emphasis turned toward the impact that such institutions can

FIGURE 1.6: ADJUSTMENTS TO EXISTING INSTRUMENTS IN PDBS, 2008–09



Source: IDB Survey 2010.

FIGURE 1.7: REASONS FOR THE ELIMINATION OF PROGRAMS APPLIED DURING THE CRISIS



Source: IDB Survey 2010.

have on development (without sacrificing financial sustainability). This has led to a new wave of institutional changes.

First, in the LAC region, some Tier 2 banks with solid financial footing have begun to change their operational mode in order to reach more beneficiaries.[8] In general, the PDBs that provide some Tier 1 services display greater dynamism (Table 1.8). In this respect, co-financing has acquired greater importance, particularly regarding projects related to infrastructure and renewable energies, which are being used by both Tier 1 and Tier 2 entities.

Second, the LAC region continues to have a tendency, seen in the rest of the world, toward a broader diversification in the sectors covered by PDB resources (Figures 1.8 and 1.9). At present, 65 percent of PDBs in the region cover a variety of sectors and the rest are specialized, mainly in housing and agriculture. Sector diversification by PDBs toward new sectors in recent years has adhered to new public policy priorities, such as renewable energy, climate change mitigation, education, social housing, microenterprises, and innovative and productive value chains. Governments have sought greater PDB integration into their

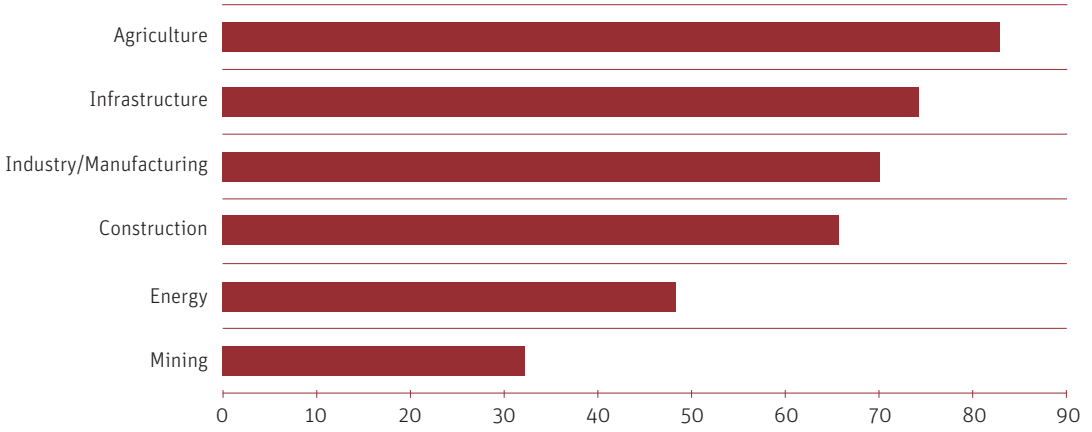
[8] For example, in El Salvador and Nicaragua, the Tier 2 institutions (Multilateral Investment Bank (Banco Multilateral de Inversiones) and Nicaraguan Financial Investment Corporation (Financiera Nicaragüense de Inversiones), respectively) were transformed via legislative changes in order to include activities of the Tier 1 institutions. Likewise, Ecuador's National Financing Corporation (Corporación Financiera Nacional), Mexico's National Financing Corporation (NAFIN) (Nacional Financiera), and the Investment and Foreign Trade Bank (BICE) (Banco de Inversión y Comercio Exterior) in Argentina have opened or reinforced their Tier 1 windows, in order to finance renewable energy projects.

TABLE 1.8: EVOLUTION OF LOANS ACCORDING TO MODE OF OPERATION
(IN PERCENT)

MODE OF OPERATION	AVERAGE ANNUAL VARIATION FOR THE PERIOD 2000–05	AVERAGE ANNUAL VARIATION FOR THE PERIOD 2005–10
Tier 1	–0.3	21.5
Tier 2	3.0	17.0
Tier 1 and Tier 2	3.2	19.4
Regional financial system	8.7	15.0

Source: Authors' elaboration, based on the ALIDE database (Databank) and financial information provided by the banks included in the review and by LAC financial system regulators.

FIGURE 1.8: COVERAGE OF PDBS BY SECTOR, LAC REGION
(IN PERCENT)

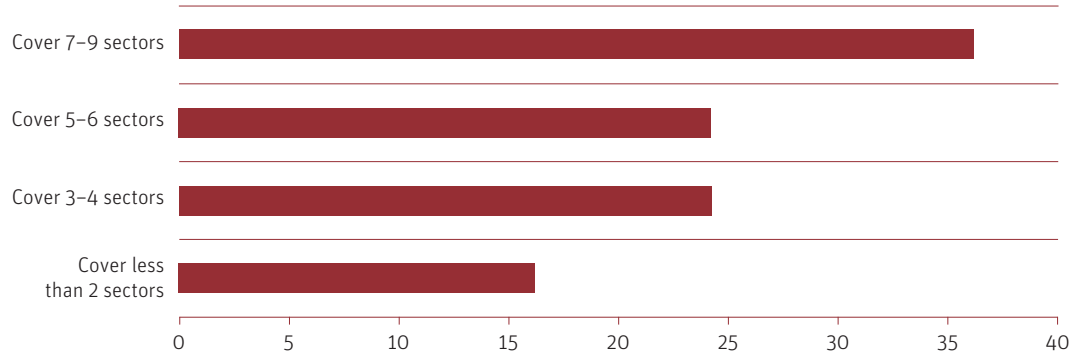


Source: De Luna-Martínez and Vicente (2012).

national economic strategies and, furthermore, the PDBs that serve multiple sectors have shown greater dynamism in recent years, as seen in Table 1.9.

Third, the instruments required for satisfying these new demands go beyond the traditional PDB mechanisms for intervening in the credit markets (either by direct credit schemes or via financial

FIGURE 1.9: LEVEL OF SECTOR DIVERSIFICATION OF PDBS, LAC REGION
(IN PERCENT)



Source: De Luna-Martínez and Vicente (2012).

intermediaries), thereby creating room for new modes of operation with the potential to generate greater added value. PDBs tackle the problems associated with greater risks in the sectors they serve and they do so, for example, through partial credit guarantees or nonfinancial services aimed at improving the financial viability of projects and clients.

TABLE 1.9: EVOLUTION OF LOANS ACCORDING TO SECTOR-BASED ORIENTATION
(IN PERCENT)

SECTOR-BASED ORIENTATION	AVERAGE ANNUAL VARIATION FOR THE PERIOD 2000–05	AVERAGE ANNUAL VARIATION FOR THE PERIOD 2005–10
Multisector banks	–2.6	21.9
Specialized banks	8.3	16.3

Source: Authors' elaboration, based on the ALIDE database (Databank) and financial information provided by the banks included in the review and by LAC financial system regulators.

CONCLUSIONS

The increase in PDB assets and loans in the LAC region over the past decade has not surpassed the average growth of local financial systems. However, even though rigorous PDB impact evaluations have yet to be carried out, they have been able to increase their relevance in serving specific market niches, and in articulating current economic policies. Moreover, this situation has, in general, still not affected their financial sustainability, due partly to the greater fiscal responsibility that governments in the region have shown.

Thereby revitalized, these institutions now find themselves in an era of new challenges and opportunities within a process that has involved extending their mandates and applying new instruments, including, in some cases, providing more Tier 1 services. These new challenges are likely to be more complex and, thus, more trying, and include risks that PDBs have not had to manage previously. These challenges, along with a less favorable macroeconomic environment, make it essential to increase effectiveness and efficiency, as well as to expand the analysis of the most appropriate instruments to achieve the desired objectives.

It is essential to intensify efforts to ensure that the actions that have brought about the improved situation continue, thus avoiding previous mistakes that have led to heavy losses and a need to inject substantial fiscal resources to sustain financial institutions. It is important for PDBs to pay attention to the institutional aspects that will enable them to achieve both their public policy objectives and long-term financial sustainability. This is precisely the theme of Chapter 2.

BIBLIOGRAPHICAL REFERENCES

De Luna-Martínez, J. and C. Vicente. 2012. "Global Survey of Development Banks." Policy Research Working Paper 5969. Washington, DC: World Bank.
Available at http://elibrary.worldbank.org/content/workingpaper/10.1596/1813-9450-5969.

De Olloqui, F. and C. Palma Arancibia. 2012. "Las nuevas oportunidades para las instituciones financieras de desarrollo en América Latina." Technical Note No. IDB-TN-402. Washington, DC: IDB.
Available at http://www.iadb.org/en/publications/publication-detail,7101.html?id=45726.

IFC (International Finance Corporation). 2010. "Scaling-Up SME Access to Financial Services in the Developing World." Washington, DC: IFC.
Available at
http://www.ifc.org/wps/wcm/connect/bd1b060049585ef29e5abf19583b6d16/ScalingUp.pdf?MOD=AJPERES.

OECD (Organization for Economic Cooperation and Development). 2012. "Financing SMEs in Latin America." In *Latin American Economic Outlook 2013: SME Policies for Structural Change*. Paris: OECD.

Schmit, M. 2011. "Findings of the EAPB Study on Public Financial Institutions in Europe." Brussels: European Association of Public Banks (EAPB).

World Bank. Undated. *World Development Indicators*. Washington, DC: World Bank.
Available at: http://data.worldbank.org/indicator/FS.AST.DOMS.GD.ZS.

———. 2010. Financial Sector Databank. Washington, DC: World Bank.
Available at: http://data.worldbank.org/topic/financial-sector.

———. 2013. *World Bank Global Financial Development Report*. Washington, DC: World Bank.

CHAPTER 2

Key Institutional Factors for the Success of Public Development Banks

Fernando de Olloqui

- Public development banks (PDBs) face a complex challenge, as they must both maintain the institution's financial sustainability and achieve the public policy goals that arise from their mandate to correct credit constraints in the market.
- The key institutional factors that can help PDBs to succeed in this challenge are a clear mandate aligned with the public policy on targeted economic sectors or segments, good corporate governance, an adequate risk management framework, a marketing strategy for products and services in line with their mandate, and proper monitoring and evaluation of their development impact.

THE NATURE OF PDBs

What are the institutional factors that would enable PDBs to fulfill their public policy mandates and achieve financial sustainability? Striking a balance between these tasks is a complicated challenge and, therefore, the nature of PDB activity—and the possible conflicts that this entails—needs to be remembered at the outset. In particular, any analysis must take the following aspects into account.

First, it is important to consider the specific PDB characteristics that distinguish them from private financial intermediaries. These include addressing market failures, receiving implicit or explicit subsidies, taking greater risks, having different requirements with regard to return on capital, and being subject to certain parameters established by their main shareholder (the State), as well as to certain public policies. Therefore, even if a PDB's operational performance is considered to be good, its overall evaluation might be unsatisfactory if the targets do not coincide with the policies established by the government, and vice versa.

Second, it is important to recognize the origin of the market failure or the credit constraint that justifies PDB intervention. It is also essential to understand the way in which the government addresses it, as part of a public policy strategy.

Third, it is necessary to examine the underlying causes behind good or bad performance, distinguishing these from the effects (symptoms) that they directly or indirectly generate. For example, the lack of a clear mandate (cause) leads to intervention in multiple sectors, some of which might not be a priority for development, nor suffer from a market failure (symptom). Similarly, the fact that the government has multiple roles and responsibilities as the bank shareholder, regulator, and defender of public interest,

and that there is a lack of delineation of each role (cause), might result in political interference with relation to technical decision making on credit matters, inadequate supervision or regulation, or a lack of accountability (symptoms).

Finally, there is no single "model" PDB, given that social, economic, and political circumstances are unique to each country. A particular practice in one country might be detrimental in another. However, certain critical aspects can be identified within a framework of action, which might, as a whole, determine a PDB's success or failure.

Bearing these aspects in mind, the following section identifies the institutional factors that determine whether entities are successful or, in other words, they achieve a balance between their two basic evaluation criteria (their public policy goals and financial sustainability). In accordance with the PDB analytical tool formulated by the Inter-American Development Bank (IDB),[1] these factors can be grouped under three performance parameters: (i) public policies, mandates, and corporate governance, (ii) operational and financial performance, and (iii) development impact.

PUBLIC POLICIES, MANDATES, AND CORPORATE GOVERNANCE

Public Policies and Mandate

As mentioned in the introduction, PDBs exist in order to achieve public policy objectives by addressing market failures or other factors that lead to credit constraints. It is, therefore, crucial to ensure that both the mandate and the institution's resources are framed correctly in relation to government strategy within the relevant sphere of public policy.

Initially, this requires the government to have a clear strategy for developing and promoting a specific economic or social area. To this end, it is necessary to conduct an analysis of the following: (i) the different public policy alternatives available for developing the aforementioned area, (ii) the way in which a PDB complements other government agencies involved and their activities, and (iii) the required resources. Otherwise, substandard results will ensue in terms of development impact, regardless of whether the PDB performs well, or the PDB will be called upon to find solutions to multiple problems when, in reality, its role should be limited.

In this sense, it is obvious that PDBs are increasingly forming part of the region's national development plans, not only under financial strategies, but also as components of sector policies. One example of how a PDB's financial services are included in sector policy is in the development of small- and

[1] The study, by Smallridge and Olloqui (2011), presents an integral and flexible tool that enables PDBs to identify the "healthy" practices they need to adopt in order to improve performance.

medium-sized enterprises (SMEs), where these services can be framed alongside other government initiatives to reduce informality, increase business development services, modify tax rates, or strengthen banking regulations.

Second, such a strategy should be included by the PDB at the outset of its mission. This mission, or mandate, and the resources (financial or otherwise) required to fulfill it, must be clearly set out in the institution's legal and regulatory framework, and should include the following:

1. Its mandates or primary objectives, as well as a timeline for reviewing and redesigning them
2. Its legal status and subjection to other public entity laws (such as those concerning the budget, auditing, and procurement), as well as to the institutions and rules relating to financial regulation and supervision
3. Its relationship with the government, particularly with regard to its role as shareholder, as well as to other government agencies
4. The relationship with the private sector, in particular its complementary role relating to private sources of capital
5. The possible sources of funding and financial restrictions, as well as—in such an event—the government's obligation to guarantee the bank's liabilities or to capitalize it. This aspect should include ways in which to achieve financial sustainability and, wherever appropriate, the role of subsidies
6. The obligation to periodically report on plans and strategies and whether the objectives are being achieved
7. Its corporate governance code

A key aspect when establishing the mandate and, subsequently, the strategic objectives within a PDB's multiannual plans, is to have previously analyzed the market failures that constitute the bank's main justification for intervening. The analysis should include the nature of the failures and the potential demand from clients, in such a way as to measure the gap between the demand and the supply of financial services and, thereby, determine its relevance. Subsequently, it is possible to identify the type of projects to be financed and the instruments that should be used, both financial and nonfinancial.

The most common errors found in the Latin American and Caribbean (LAC) region with regard to PDB mandates are the following: (i) they are too rigid and cannot adjust to market conditions, (ii) they establish multiple objectives that do not necessarily relate to the public policy that is being addressed, (iii) they reflect inadequate client selection, or (iv) they overlook the objective of financial sustainability. Furthermore, there are no examples of entities that, complying with their own internal regulations, periodically review their mandate. Some examples of the problems seen in the LAC region relate to mandates that have the following characteristics:

1. They allude to activities that are not properly of a PDB or that are not modified over time (such as promoting stock market development).
2. They merely indicate the sustainable and competitive development of the economy, which leads a PDB to intervene in any sector, irrespective of its strategic importance or whether a real credit constraint exists.
3. They include the specific method by which the sector is to be addressed, without considering that the optimum one should be dictated by market conditions.
4. They do not classify clients according to segments where a market gap exists or, rather, fail to define the type of client (financing for micro-, small-, medium-sized and large enterprises, as well as for associations and cooperatives).

Corporate Governance

Corporate governance is perhaps the most fundamental element for successful PDB performance. This can be defined as a system made up of a combination of organized elements that interact among themselves with the aim of controlling and administering a business or institution, whether public or private. In general, the best corporate governance practices entail benefits for the enterprises that adopt them, such as value creation for shareholders, greater capacity for fulfilling the company's mandate and various objectives, a better control environment, conflict of interest management, limitation of opportunism by administrators, greater competitiveness, access to capital markets, professionalization of management, better risk management, and lower funding costs. In the context of PDBs, corporate governance is a tool whose use contributes to an entity's sustainability over time, as well as to the achievement of the goals for which it was created.

The smooth operation of any enterprise rests on the correct allocation of functions and the complementing responsibilities between the different levels of governance (ownership, administration, and management). Irrespective of a PDB's legal form, ownership resides with the State (the single or principal shareholder), and is located at the top of its governance structure.[2] Ownership entrusts the administration to protect its interests by giving it certain decision-making powers; therefore, the administration is positioned at the intermediate level in an entity's governance structure and is accountable to ownership. Finally, management is the base of the business governance structure, and it responds to the administration's need for a team to manage day-to-day operations.

[2] For the purpose of this argument, it is understood that the State assumes control of ownership, although it is worth highlighting that there are differences between a sole and a majority shareholder. For example, there are businesses in the region with good corporate governance, which, for the most part, has meant that if the government is the majority shareholder, they are listed on the stock market. In some countries, PDBs are open to the possibility of attracting private or multilateral capital (e.g., Colombia and Peru). These advances might help to resolve various problems in this area.

The relationships between the three levels are based on formal and informal contracts, and have been widely dealt with under the agent-principal theory. According to this theory, conflicts of interest might arise between the ownership (called the "principal") and the parties that have been given a mandate by the owners to look after their respective interests (referred to as "agents"), which are represented by the administration and the management. Information asymmetries might lead the agents to act in self-interest, in detriment to the interests of the principal. This problem calls for a government system that provides clarity on PDB control and administration.

It is the ownership level of a PDB that is ultimately responsible for ensuring that its corporate governance framework is well designed and implemented, as well as for guaranteeing that the other levels comply—and enforce compliance—with what is expected of the aforementioned system. Even if a governance framework is well implemented, there are three basic instances when its operations may be jeopardized in such a way that the effectiveness of the reciprocal controls between the three levels is weakened: (i) ownership disregards the administration, (ii) the management counteracts the administration, or (iii) the demarcation between administration and management becomes blurred.

The two former situations are more likely to be seen in PDBs in the LAC region. The third responds to a system of governance that is commonly observed in U.S. private corporations and—with some significant exceptions, such as in Nicaragua and Paraguay—that is not often found in public entities in the region.

All three situations represent a failure by the ownership, and primarily affect the administration (specifically, its capacity to exert control over its management). This suggests that, irrespective of the financial accountability provided to the public by the PDB, the owner must also explain and justify the decisions it makes regarding PDB governance.

In order to define a framework of action for managing potential conflicts of interest and reducing the risk of political interference, governments in different LAC countries have made significant efforts in recent years to adapt the legal framework, or at least the specific aspects of corporate governance applicable to PDBs, according to international best practices. However, although these initiatives represent the first steps forward, their potential effects might be limited because they are incomplete, conceptually erroneous, or lack complementary regulations and/or diligent monitoring by the supervisory bodies. The following is a discussion of the progress and challenges relating to certain essential corporate governance practices in the region. Within this context, the regulatory frameworks of various PDBs in Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Mexico, and Peru are compared.[3]

[3] In order to ensure diverse samples, different regions, sizes, and approaches have been included: Argentina's Bank of the Province of Buenos Aires (Banco de la Provincia de Buenos Aires); Colombia's Business Development Bank (Banco de Desarrollo Empresarial, or BANCOLDEX), formerly the Bank of External Commerce (Banco de Comercio Exterior); the Agrarian Bank of Colombia (Banco Agrario de Colombia); the Brazilian National Bank of Economic and Social Development (Banco Nacional de Desarrollo

Independence of the boards of directors. It is fair to say that half of the banks anticipate ensuring the independence of members of the board of directors, although this is manifested in different forms. For example, three PDBs have directors who have not been nominated and elected by the government. In another case, some directors are independent in terms of not being civil servants, although they have been chosen by executive mandate. In Peru, the PDB executive committee is overseen by a supervisory council that includes representatives from the private sector, and in two other cases, they are externally confirmed (the Senate in Argentina and the banking supervisor in Costa Rica).

In principle, it is good to note that regulations, such as those in Chile, Colombia, and Mexico, determine that PDB boards of directors should be comprised of independent members. However, in some cases, the definition of "independent" is very weak, leaving loopholes that may limit the independence of the directors. In others, they are simply based on false premises, such as the case of a director being qualified as independent simply by not being a public civil servant. If the less-than-transparent processes for evaluating candidates are added, it could be concluded that some directors classified as independent are not necessarily so in practice. The criterion for establishing director independence should, therefore, be precise in order to make evaluation possible.

It is worth mentioning that the criteria for determining the appropriate independence of board members should also be similarly applicable to the audit committee members. It would, furthermore, be advantageous for such committees to be formed solely and exclusively by independent members.

Nomination of the boards of directors. In most countries in the region, the members of PDB boards of directors (regardless of the fact that they are independent or not) are politically nominated. However, countries falling outside the LAC region, such as Canada and South Africa, have stipulated in their legal framework the requirement that members of the boards of directors be properly qualified for the position. This requirement goes beyond the issues of conflict of interest, formal disqualification, or the assessment of honor and experience.

In both cases, a special committee of the board of directors (in general, the nominating committee or equivalent, with a majority of independent members) is responsible for defining the necessary qualifications of a PDB director, evaluating the capabilities of incumbent directors, and establishing the criteria for entrants. On the basis of this information, the special committee comes up with a short list of candidates for the representative of political ownership, so that new directors can be named; in turn, the latter can, if they deem necessary, designate others not included on the short list.

Económico y Social, or BNDES); the National Bank of Costa Rica (Banco Nacional de Costa Rica); Chile's Production Promotion Corporation (Corporación de Fomento de la Producción, or CORFO); National Financing of Mexico (Nacional Financiera de México, or NAFIN); the El Salvador Development Bank (Banco de Desarrollo de El Salvador, or BANDESAL); the State Bank of Peru; and the Peruvian Development Financing Corporation (Banco del Estado y Corporación Financiera de Desarrollo, or COFIDE).

Conceptually, this is an advanced nomination system that limits political influence over the processes of candidate identification and evaluation, although—as is only to be expected—it does leave the final nomination of directors in the ownership's hands.

A binding corporate governance code. All the banks, in different degrees, are conscious of the importance of governance as an effective management tool. Some, such as the National Bank of Costa Rica, Peru's Development Financing Corporation (Corporación Financiera de Desarrollo, or COFIDE), and the Business Development Bank (Banco de Desarrollo Empresarial, or BANCOLDEX) in Colombia, have written corporate governance codes.

The idea of a written code for effective governance has been gaining ground as a valid instrument to achieve two main objectives: (i) implementing best corporate governance practices, previously included in the social statute, and (ii) serving as a collection of documents to represent the governance framework of the issuing entity, in order to disseminate it among third parties. For example, in Colombia all securities issuers, including PDBs, are obligated by a 2001 regulation (decreed by the then securities exchange commission) to have their own corporate governance code before being permitted to receive pension fund resources.

Although this regulation could be interpreted to have introduced a concept of good governance at the legal and regulatory level, in most cases, the adoption of the code has been limited to compliance with legal requirements. This compliance would exclude more effective corporate governance practices that could have been adopted through self-regulation, thus diminishing the effectiveness of the code.

Transparency. All the banks reviewed in this study are committed—some by law—to maintain transparency in their management procedures and programs. Modern practices have been implemented for internal auditing, either through an auditing committee or otherwise, and an audit report should be handed to the board of directors. All the institutions that were compared publish annual reports and all, except one, are externally audited. Many of the banks assign a specialist to verify compliance with local banking regulations, bank policies, loan approvals, and so on.

For many years, the mere publication by a PDB of annual financial statements (and, in some cases, of financial statements corresponding to intermediate periods) was considered to be the paradigm of maximum transparency. At present, however, from a corporate governance perspective, the publication of financial statements represents only a small part of the transparency obligations to the public or the market that institutions must fulfill.

Some corporate governance bodies have understood this new trend and have considered, in relation to transparency or related regulations, the need to strengthen the quality and quantity of information that supervised institutions are required to publish. They have even defined the publication

mechanisms and the minimum content to be disclosed, including the following headings, among others: corporate governance, financial information, budgetary information, investment projects, control environment, and performance indicators. Furthermore, to cite a case that falls outside the LAC region, Canada's legal framework requires its PDBs to report the political pressure that they perceive in relation to decisions regarding the provision of credit, an effective tool for limiting the risk of political interference.

With regard to transparency, little has been mentioned about the fiscal impact of PDBs and how this information is presented to the legislative body and the public. In this sense, directed credit and subsidized loans may be considered a quasi-fiscal activity, whereas explicit guarantees from the State for certain loans should be considered a fiscal contingency (Fouad et al., 2004). The fiscal risks these represent should, therefore, be evaluated and reported in government accounts.

In conclusion, the fact that different measures aimed at strengthening corporate governance have been introduced does not mean that these best practices are in place. PDBs in the LAC region face challenges in relation to implementing control and administrative functions, due to the following enabling environmental shortfalls:

1. The heterogeneous nature of the applicable legislation: there are common regulations for banking entities in general, and also specific regulations for PDBs.
2. The legal framework has few formally typified, reciprocal controls that are applicable to the three levels that define the business organization model: ownership, administration, and management.
3. There are limited demands for responsibility and accountability.
4. There is a low level of self-regulation, owing to both a lack of will and to the rigidity of the applicable legal frameworks.
5. There is a possibility of politicization as a consequence of changes in government, and also due to the responsible of the public officials to exercise political ownership rights at the PDB.

OPERATIONAL AND FINANCIAL PERFORMANCE

As with any financial institution, a PDB has to be administered in a viable and sustainable way. Its financial sustainability is determined by its capacity to maintain, over the long term, the products and services it provides, according to its mandate. This is an even greater challenge, given that addressing market failures usually implies assuming a risk profile that is higher than the market average, and which may have to be maintained over an extended period.

Therefore, in general, PDBs face more financial pressures than other financial entities (both private and public), and they require exceptional operational management that goes beyond the usual

challenges of conducting good credit processes and minimizing costs. Furthermore, while any organization minimizing costs requires appropriate human and technological resources, PDBs do not always have the necessary budgetary autonomy to obtain them. Fortunately, some countries have identified a need for PDBs to have contracting and procurement guidelines for goods and services that, in addition to offering guarantees in terms of public monitoring, recognize the singularity of the banking business and the need to offer competitive salaries to attract and retain the necessary human resources. There are two key elements for the operational and financial performance of PDBs: risk management and marketing strategy.

Risk Management

Efficient risk management is particularly important for PDBs, given that it is in their nature to assume the risks that other financial intermediaries are unwilling or unable to undertake. Although all the usual risks faced by any financial institution should be taken into account—credit, liquidity, market (rates, foreign currency), and operational—there are certain aspects specific to PDBs that are worth highlighting and that need to be mitigated.

With respect to credit risk, the risk management framework will be different depending on whether the PDB is a Tier 1 or a Tier 2 institution. In the former case, in addition to managing the direct credit risk represented by a client or a project, PDBs will face the challenge of collecting payments and executing collateral, which can be particularly challenging in those political and social environments in which there is a tradition of not paying the government, stimulated, for example, by debt forgiveness that have taken place in the recent past.

If the PDB is of the Tier 2 variety, it must have an efficient system for evaluating the counterparty risk of private sector financial intermediaries, which becomes more difficult when these include nonregulated and unsupervised entities. The PDB must ensure that its counterparts follow best risk-management practices and comply with the corresponding prudential financial regulations. In various countries in the LAC region, PDBs are required to exercise this responsibility, which is either formally or informally delegated by the financial system's supervisory body. This obviously entails extra costs for PDBs, and imposes upon them a task that goes beyond their mandate.

Further aspects need highlighting with respect to liquidity and market risks, particularly given that, by their very nature, PDBs tend to provide credit over the long term, while financing their activities with short-term resources from the market. It is common to encounter liquidity gaps in the PDBs of the LAC region, given that they enjoy either explicit or implicit government guarantees over their liabilities. Although this enables PDBs to fill the funding gap and refinance themselves quite easily in the market, it is not, however, a healthy practice and, even in times of a liquidity crisis in the financial system, some PDBs have witnessed this risk become a reality. Similarly, they also sustain interest rate gaps, assuming that their

assets are invested at a fixed rate and that hedging instruments in the region are scarce, which means that an increase in interest rates would lead to a loss in the banks' valuation.

An important part of risk management is that the risks are adequately reflected in the financial reporting system, as well as in the entity's capital management framework. When interpreting PDB financial performance, the higher credit and market risk that they assume must be included. Consequently, financial reports must include the expected losses from such risks, as well as the economic capital,[4] in place of the quantity assigned to reserves under accounting standards, in order to arrive at a return adjusted for the "excessive risk" assumed.

Furthermore, in optimum conditions, financial statements must also be adjusted for the marginal effects of the bank's development mandate, both in terms of revenue, as well as the operational costs that this implies. This concept should also be an input for a PDB's strategic and financial planning process, given that it would enable both the cost of achieving the public policy goal and the measurement of its impact on the entity's financial stability. For example, additional revenues can arise from the below-market interest rates with which the PDBs finance themselves, either because they are government backed or depend on the direct financing of the government or other forms of operational recurring subsidies to which private entities lack access. In turn, the additional costs that PDBs incur in pursuit of their mandate can be reflected in a more flexible credit policy, in terms of interest rate conditions and credit risk; in the additional regulatory and auditing costs to which they are subject as public bodies; or in the greater liquidity risk to which they are exposed.[5] The difference between a PDB's expected losses and those of a private bank could be quantified as being a cost of development.

Likewise, a PDB must manage its capital within a specific framework, either one that is based on the Basel Committee on Banking Supervision (BCBS) or that is internally generated, which would apply the restrictions or limits imposed by the regulatory or economic capital to the entity's financial and strategic planning process.[6] The reasons for this include the following:

1. Given that a bank's capital is maintained in order to cover unexpected losses, in its strategic planning process the PDB must consider the additional degree of risk it is assuming. If it fails to accurately estimate the risk, or to reflect it in its credit policies, it exposes itself to financial stress scenarios.

[4] Economic capital is the measurement that relates capital to the risk assumed (compared to assets), and it can be expressed as a cushion against future, unforeseen losses beneath a defined level of confidence.

[5] This is the case insofar as this additional liquidity risk is not charged to the client through the interest rate, and that the commercial banks would not be ready to accept it.

[6] To measure their economic capital requirements, some PDBs have developed an internal framework, which is framework by its risk profile throughout a particular cycle and with a certain margin of confidence.

2. Either by law or due to fiscal restrictions, PDBs cannot depend on injections of resources from the government. Therefore, as they have to seek finance from the domestic or international credit market, some banks have obtained credit ratings.
3. As a public entity, the PDB is responsible for ensuring that the fiscal resources at its disposal are appropriately administered.

Marketing Strategy

The marketing strategy must be consistent with the PDB's mandate. This requires a distribution of products and services that is both efficient and also leads to achievement of its development goals and congruence between the products offered and their prices.

With regard to product and service distribution, according to traditional arguments, operating in Tier 2 minimizes risk, reduces costs, and maximizes PDB market penetration, given that it takes advantage of the private entities' distribution network (or scale). For its part, operating in Tier 1 enables the bank to deal directly with beneficiaries, and thereby facilitates achievement of its development goals. In effect, Tier 2 entities have less scope for achieving their objectives while the private financial intermediaries make the credit decisions, which is only natural given that the latter are assuming the risk and should, thus, take the decisions about collateral and the price of credit.

This argument has been steadily transformed over time, given that the theoretical advantages and disadvantages of each type of operation are not always borne out in practice. For example, as shown in Chapter 1, some Tier 1 banks have become relatively efficient at the operational level. Furthermore, Tier 2 entities have experienced problems in achieving greater market penetration, given the context of greater liquidity in the financial systems and the difficulty of offering funding to other intermediaries at competitive rates.

In both cases, it has been useful to adopt new banking technologies, including those that help to increase financial inclusion and reduce transaction costs (which also includes information costs). Likewise, various PDBs have widened their distribution channels to increase their client base, finding alternative non-banking channels to finance sectors with less access to financing or sectors underserved by banks. These channels include the following:

1. Nonfinancial operators, which complement the distribution networks in geographically isolated areas and use rotating credit schemes that lower operational costs.
2. Suppliers and buyers, who have better information regarding clients and greater capacity to recuperate their loans.
3. Financial non-banking intermediaries, such as microlenders, cooperatives, leasing companies, factoring companies, financial companies, and so on, which do not, in general, gather deposits from the public.

In this context, in recent years the number of institutions that operate in both modes has increased. A third, hybrid model is even being tested that consists in subcontracting part of the credit process to the commercial bank (debt origination, administration, and collection), thereby benefiting from the bank's distribution platform and its analytical capacity in exchange for a commission, while the PDB takes on the risk.[7]

With regard to congruence between the products on offer and their prices, it is worth highlighting the complexity of PDB pricing policy. This arises from the contradiction that can arise between financial and development goals, which might, in turn, lead to sub-optimum choices regarding price and risk. Prices are established according to the institution's mandate, as well as its capital and financial framework. Therefore, pricing policy should consider whether or not subsidies are available, which can be acceptable depending on the nature of the established mandate, and as long as they are transparent (including their source of financing)[8] and do not imply negative externalities for the market or for the assumptions regarding capital costs. With regard to the latter point, given that a PDB's objective is not to obtain the greatest return on capital, it is possible to assign the excess capital (above the regulatory minimum) to those operations that promise the greatest social returns. Given the wide range of different institutions and models, there is no single methodology for a PDB to follow in establishing prices; the essential factor is to be consistent with the legal and capital framework in which the institution works.

DEVELOPMENT IMPACT

It is only possible to fully evaluate PDBs, by their very nature, by measuring their impact on a country's socioeconomic development. To this end, the PDB must articulate its goals as performance indicators and reflect them in their credit processes, monitor their results, and verify them ex-post. This should be done with the support of an independent unit, or even a specialist third party, selected through an open tender process to prevent the government from becoming both judge and jury.

Consequently, although there have been significant steps forward in monitoring PDB financial indicators, the same cannot be said about monitoring their social or development mandate. As is further examined in Chapter 3, some PDBs, including Colombia's Business Development Bank (BANCOLDEX) and Mexico's Trust Funds for Rural Development (Fideicomisos Instituidos en Relación con la Agricultura, or FIRA) have made significant efforts to carry out impact evaluations of their own programs; however, these

[7] One alternative, already practiced by El Salvador's Development Bank (Banco de Desarrollo, or BANDESAL), is for the approval of the loan to remains in the hands of the PDB. Similarly, the commercial bank can be asked to assume some of the risk.
[8] Rudolph (2009) presents the alternatives open to PDBs for financing subsidies.

are isolated cases. There are available studies in this regard, but they are far from perfect for PDB evaluation.[9] This is because, in the first place, they analyze the impact of public banks, in general, rather than examine the closed universe of pure PDBs and, in second place, because they use partial equilibrium models and fail to focus on the subject of attribution.[10] In contrast, evaluations should focus on the impact of specific PDB programs targeted on certain sectors, independently of the business cycle or other explicative factors.

A sound impact evaluation helps to identify those programs that are working well and the aspects of a program that could be improved. The need for reliable evaluations takes on even greater significance in the current situation, in which new programs for new economic sectors and segments have arisen. In this regard, it would have been helpful to evaluate the programs established during the global financial crisis of 2008–09, in order to gather more information in case these institutions have to intervene during a new recessive cycle.

Impact evaluations also enable PDBs to explain to their shareholders (the government) the contributions they make to public policy goals, thereby justifying subsequent capitalization. Furthermore, as they generate information regarding PDB impact, they can also help to complement the initiatives aimed at improving corporate governance, limiting the probability of political interference in technical decisions and contributing to their transparency by explaining exactly what happens to public resources. It is, therefore, indispensable that all evaluations, regardless of their conclusions, are widely disseminated among stakeholders, in order to foster the accountability of those who design and execute public policies.

One essential step in the process to strengthen PDB evaluations is to clearly define the results and impact indicators that need to be measured and monitored. It is not sufficient to measure the direct results of PDBs (e.g., number of businesses served, credits granted, disbursements); it is also essential to consider the social and economic benefits of their actions. This can be achieved through different approaches, which include the following:

1. Additionality on the financial system (e.g., extension of yield curves)
2. Impact on a particular development goal, such as productivity, employment, or exports.
3. The demonstration effect on the financial sector; that is, in terms of developing the market and directing its credit decisions toward sectors with information gaps.
4. Knowledge transfer; for example, when a nonfinancial service is provided.

[9] See Rudolph (2009) and Gutiérrez et al. (2011), wherein reference is made to various studies on this question.
[10] The subject of causality is difficult to address at the macro level. Levy-Yeyati et al. (2007) examine the matter in full detail.

5. Change in behavior, which can be appreciated by businesses enhancing their social and environmental responsibilities.
6. Positive externalities.[11]

A sound systematic evaluation requires planning from program inception, in order to define the measurement indicators, establish control groups, and gather and monitor information over the course of the program. Monitoring is the starting point of the learning process, given that it allows for the analysis of the program's progress according to its design and implementation. The lessons learned can be introduced into subsequent strategic plans. It is, therefore, necessary that development criteria be incorporated into credit policies and processes.

Finally, optimum measurement of the programs' benefits also enables the evaluation of their efficiency. It is worth pointing out that public policy consists, to a large extent, of assigning scarce funding resources between different alternatives. The fact that a chosen program obtains a high rating in an impact evaluation does not necessarily imply that the limited public resources were optimally allocated. In this case, governments must recognize that it is critical to continue to pursue a traditional cost-benefit analysis, apart from rigorous reviews, to ensure that these limited resources are diverted to programs that would result in the best economic and social return. It must be borne in mind that PDBs constitute just one of the intervention instruments available to government, and it is fundamentally important to select the most adequate one.

[11] One example of this is provided by Mexico's Federal Mortgage Company (Sociedad Hipotecaria Federal), which helped to improve the public property registers in certain municipalities as part of its program for promoting juridical certainty in the housing market. This also helps to strengthen the collateral value of its operations.

CONCLUSIONS

The institutional factors described in this chapter are useful for determining the way in which PDBs can improve their performance, although specific application depends on the economic, political, and financial context under which each one is operating. Irrespective of the economic sector or segment addressed, a PDB should attempt to showcase credible performance results in face of the government, financial sector, clients, and society as a whole, by contributing to the socioeconomic goals of public policy, their additionality on the financial system and beneficiaries, an efficient financial operation, and their complementarity to private capital.

Various LAC countries have made progress in establishing the legal and regulatory frameworks that lead to improved performance; however, the effectiveness of these frameworks is unclear and requires constant re-evaluation by stakeholders, and even more so in the context of the dynamic PDB evolution that is described in Chapter 1 of this book. Consequently, it is important to emphasize the importance of strengthening corporate governance among entities, given that this, to a large degree, is what ensures sustainability. A sustainable PDB, in general, must (i) fulfill its mandate and achieve its goals, although these will change over time, (ii) properly manage its conflicts of interests to have enabled it to make decisions for its own benefit, and (iii) create a culture of professionalism and good risk management.

BIBLIOGRAPHICAL REFERENCES

Fouad, M., R. Hemming, D. Lombardo, and W. Maliszewski. 2004. "Fiscal Transparency and State-Owned Banks." In Caprio, et al., *The Future of State-Owned Financial Institutions*. Washington, DC: The Brookings Institution.

Gutiérrez, E., H. Rudolph, T. Homa, and E. B. Beneit. 2011. "Development Banks: Role and Mechanisms to Increase their Efficiency." Policy Research Working Paper 5729. Washington, DC: World Bank.

Levy-Yeyati, E., A. Micco, and U. Panizza. 2007. "A Reappraisal of State-Owned Banks." *Economía*, Journal of LACEA (Latin American and Caribbean Economic Association).

Rudolph, H. P. 2009. "State Financial Institutions: Mandates, Governance, and Beyond." Policy Research Working Paper 5141. Washington, DC: World Bank.

Smallridge, D. and F. de Olloqui. 2011. "A Health Diagnostic Tool for Public Development Banks." Technical Note No. IDB-TN-225. Washington, DC: IDB.
Available at http://www.iadb.org/en/publications/publication-detail,7101.html?id=6006.

CHAPTER 3

The Effectiveness of Public Development Banks: Designing Good Impact Evaluations

Alessandro Maffioli and César M. Rodríguez

- Although still in the early stages, evidence from Latin America shows that there have been significant efforts to measure the effectiveness of programs closely linked to public development banks (PDBs) and of PDBs themselves.
- Sound impact evaluations require a clear definition of the impact indicators to measure, access to a full and reliable database, selecting the best methodological approach in accordance with the questions and the available data, and having the necessary financial and human resources.

WHICH EVALUATIONS ARE PERTINENT?

PDB programs have become a fundamental ingredient of productive development policy strategies in most emerging economies. Although the overall need for these interventions is rarely questioned, academics and policymakers often debate their effectiveness, as well as the optimal approaches and instruments necessary to implement them. Therefore, the need to produce rigorous evaluations of PDBs has become increasingly relevant for both government and civil society (see Chapter 2).

This chapter presents the main concepts and operational arguments regarding the execution of in-depth impact evaluations of PDB initiatives and instruments. For a more practical approach, these arguments are presented with examples of such evaluations, which have either ended or are ongoing, as well as of other programs that relate to their activities. This, however, limits the scope of this chapter.

First, only one key aspect of the evaluation process is included: the attribution of effects. This suggests that all the methods and techniques covered address the fundamental problem of identifying the causal relationship between public policy intervention and the observed changes in the study's target population. Other important elements relating to a comprehensive evaluation process—such as efficiency, relevance, and institutional coherence—fall beyond the scope of this analysis.

Second, only quantitative approaches are included, in order to solve the problem of attribution. This does not, in any way, imply that the contribution made by the qualitative approaches to the study of PDBs is not appreciated. On the contrary, quantitative and qualitative approaches are complementary, but much more exhaustive studies are required to include both. This chapter focuses mainly on the methodological literature based on counterfactual analysis, which stems from applying experimental and quasi-experimental methods to the evaluation of public policy.

Interventions that are applicable to a PDB can cover a wider range of sectors than can be dealt with in one chapter alone. Therefore, the analysis and discussion in this chapter is restricted to those PDB initiatives that improve access to credit for the productive sector (business and agriculture). As such, it is possible to discuss more specific ideas and suggestions, while acknowledging that the complexity and characteristics of PDB programs call for more specific studies.

The rest of this chapter is structured as follows. It begins with a section posing the most important questions that are (or should be) included in any study of PDB effectiveness. The following section will identify the most commonly used indicators in these studies and the potential sources of information needed to establish such indicators. Later, the chapter analyzes the methods to respond to important questions relating to an evaluation, thus ensuring that the effects are correctly attributed. The final section explores the resources required to carry out a rigorous PDB evaluation.

AN EFFICIENT EVALUATION: ESSENTIAL QUESTIONS

One of the first issues to determine prior to conducting a PDB impact evaluation relates to the evaluation's principal objectives. These can be divided into two basic groups: (i) those that relate to the Average Treatment Effect on the Treated (ATT) and (ii) those that relate to an analysis of the program's secondary effects. The majority of analyses of the effectiveness of PDB programs seeks answers in terms of the ATT; for example, an analysis of the impact of the creation of a credit line on the quality of access to credit—or on the performance of the beneficiary businesses—should focus on the ATT.

Once a careful selection of the apparent outcomes and their indicators has been made, an evaluation of the impact of PDB programs is not a trivial task, especially in terms of measuring the causal impact that these programs have on expected outcomes. The definition of causality in any impact evaluation is based on counterfactual analysis; in other words, what would have happened if the program had not existed? For example, if a business receives a subsidized loan or a specific line of credit, and the value of a certain outcome is observed (credit quality, performance, etc.), the public subsidy will have a causal impact when it can be demonstrated that, in its absence (all other factors being equal), the outcome would have been different.

Although this is a relatively simple and inherent definition of causality, it does present an important empirical complication: by definition, the counterfactual result can never be observed. In other words, if a firm receives a subsidy, it becomes impossible to determine what outcomes that firm might have achieved without the subsidy, or vice versa. Holland (1986) refers to the impossibility of observing a determined unit concurrently with and without treatment as the "fundamental problem of causal inference."

The challenge of defining an adequate counterfactual cannot be resolved based solely on an individual observation (in other words, it is impossible to generate a counterfactual for a specific beneficiary of a public intervention). However, it can be resolved efficiently in terms of the average values of a combination of beneficiaries.[1] Impact evaluations, therefore, focus on calculating the average, rather than the individual, effect of the treatment.

It is possible to estimate this average effect in various ways. The parameter for the widest scope is the average impact of the treatment on the population, as a whole: Average Treatment Effect (ATE). Calculating the ATE involves constructing two counterfactuals (and, therefore, measuring two parameters): first, the counterfactual of what would have been the outcome for beneficiaries if they had not been beneficiaries (the ATT) and, second, the counterfactual of what would have been the outcome for the nonbeneficiaries if they had, in fact, been beneficiaries (also known as the Average Treatment Effect on the Untreated, or ATU).

These parameters will be biased in any study that does not incorporate the random assignment of beneficiaries (see Appendix 3.1). In all other cases, econometric techniques should be applied to eliminate biases and accurately calculate the program's average impact.

Although both ATE and ATT are extremely important for evaluating the effectiveness of an intervention, a well-designed evaluation can provide additional information to aid in the analysis of this effectiveness, and derive adequate conclusions that contribute toward a successful policy design. One should consider the following aspects in the design of an evaluation.

EXTERNALITIES

When a program is implemented, a producer or a business can experience varying types of externalities or indirect effects. For example, the fact that a business receives a loan according to a PDB policy could mean that it will undergo changes in its production chain that will augment its productivity, which could, in turn, affect other neighboring firms, or those with which it is linked. These other firms may be either geographically close or linked through the production process, in which case they can be considered as indirect beneficiaries. In principle, a distinction can be drawn between the monetary and nonmonetary effects of externalities. For example, monetary effects could be those related to cost reductions in the production chain, whereas nonmonetary effects could be changes in actual production technique.

[1] See Appendix 3.1 for an analysis of this subject.

Economies of agglomeration may even arise, which can result from a combination of positive externalities occurring simultaneously, specific to an industry or location. For example, in a PDB program, beneficiary enterprises could take advantage of economies of agglomeration and enhance their performance through information flow and new technologies, generated by both formal and informal links between enterprises and organizations. In turn, these effects could generate negative and positive externalities and/or general equilibrium effects. Therefore, these aspects should be considered within the evaluation; otherwise the overall impact of the PDB programs could be misinterpreted.

Distribution of Effects over Time

It is possible that the effects of certain PDB programs, such as economic performance, take time to reveal themselves. In fact, the process of incorporating new credit, recruiting adequate staff, and organizing the business will delay the effect on economic performance.

These time lags can vary, according to the economic performance indicator selected. For example, an intervention could generate a temporary increase in results, or it could have significant impacts that would dissipate progressively over time. Alternatively, the program's impact may become apparent only after a determined period, or there could be an initial decrease in results, but later an improvement.

Therefore, a PDB program impact evaluation should contain an adequate idea of the distribution of the effects on beneficiary enterprises over time. A distinction should be clearly made between the short-, medium-, and long-term effects, in order to adequately evaluate the costs and benefits of a public program. In fact, focusing only on a brief period after an intervention could lead to an underestimation of the impacts in the event that the program's effects take several years to be recognized. On the other hand, evaluations that only take into account periods following implementation of the intervention could result in an underestimation of costs, should an adjustment process take place during the initial few years.

Intensity of Treatment and Dosage Effects

Literature relating to impact evaluations generally analyzes the binary case of participation versus the lack of participation in a determined program. In practice, units may often differ, not just according to their binary treatment status (participants versus nonparticipants), but also according to treatment intensity. For example, enterprises may receive different amounts of financing from a PDB loan program, or they may participate by taking out loans at varying times. This highlights the important aspects that need to be kept in mind during the evaluation design. It is useful to recognize whether participants perform better than nonparticipants, as well as how different degrees of treatment intensity influence performance, and whether it is possible to locate an "optimal level" for intervention (e.g., the amount of financing that maximizes the effects on corporate performance).

Multiple Treatments

In contexts of multiple treatments, the evaluator may be interested not only in the individual effects of each treatment, but also in the effects generated by their interactions. It is far from clear whether the effect of multiple programs is always cumulative. However, research indicates that combining different interventions can produce multiplicative effects, but also that the effects of one treatment can sometimes cancel the effects of another (e.g., when enterprises take investment loans from a public bank and, at the same time, a subsidy for innovation is granted by a funding program). Investigating the combined effect of different types of interventions is crucial to effective PDB program design.

Heterogeneity of the Impact

In most contexts, it is hard to assume that a certain intervention will have a constant effect on all of the units reviewed. In particular, two main types of impact heterogeneity can emerge. The first occurs when the interventions have varying effects on different groups (e.g., when the effect of a PDB credit is stronger in those businesses that would otherwise be experiencing liquidity constraints). The second relates to distribution of the effects of the program throughout the population; for example, two programs might have the same average effect, but the effects of one could be concentrated in the lower half of the distribution (Frölich and Melly, 2009).[2]

INDICATORS AND DATA

Indicators

Various indicators can be used to evaluate the impact of PDB programs on business performance.[3] These include productivity, innovation, and employment, as well as others that relate to exports.

Productivity

There are various ways to measure productivity in an enterprise. The term may refer to the productivity of an input (e.g., labor productivity) or to the productivity of all inputs (i.e., the total factor productivity,

[2] Heckman, Smith, and Clements (1997) list other parameters that might be of interest to the evaluator: (i) the percentage of persons that accept the program and benefit from it, (ii) the percentage of the total population that benefits from the program, (iii) certain impact distribution quantiles, and (iv) the distribution of gains to certain base state values. In these contexts, restricting the analysis to the average impact on the overall population (or on the treated population) might lead to an inaccurate, or at least incomplete, evaluation of the program's effects.

[3] As Gertler et al. (2011) reveal, the foremost indicators should be Specific, Measurable, Attributable, Realistic, and Targeted (SMART).

or TFP). Special caution must be taken when measuring labor productivity, which is expressed as the ratio between total production and the work factor.[4] In practice, enterprises produce diverse goods, and these have to be aggregated in a single measurement of production (e.g., sales or added value). Generally, there is information available regarding the number of employees and the labor costs, despite the fact that nominal variables should be qualified to obtain true variables.

With regard to TFP, the various methods of calculation make assumptions about the production process and market competitiveness. Each method, therefore, has its strengths and weaknesses.[5]

Given the difficulty of observing this variable, many PDB programs are designed to directly address the improvement of diverse related variables that are easier to observe, such as, for example, the value of exports, research and development (R&D) costs, innovation, total sales, and employment levels.

Export-related indicators

In some cases, PDB programs can focus on promoting the exports of beneficiary firms. In order to measure the effects of these kinds of programs, different indicators can be used, including the value of exports, the probability that a firm becomes an exporter, the number of goods exported, and the number of export markets.

Some impact evaluations in the Latin American and Caribbean (LAC) region use these indicators. For example, using the database that includes enterprises in Peru, throughout the period 2001–05, Volpe and Carballo (2008) find a relationship between the initiatives for promoting and for increasing exports, both in terms of markets and products. Likewise, according to a combination of corporate data covering the period 1996–2008, Castillo et al. (2011) observe that Argentina's Business Restructuring Program (Programa de Apoyo a la Reestructuración Empresarial, or PRE), which aims to strengthen the small- and medium-sized enterprises (SMEs), does enhance the chances of a firm becoming an exporter.

Innovation-related indicators

PDB programs can aim to correct market gaps by promoting investment by enterprises into R&D.[6] Instruments used to tackle this problem—as well as financial limitations on innovation—include public subsidies (through support and nonreturnable grants), specific credits, tax incentives, and tools related to

[4] Ideally, these should be measured as the quantity of goods produced and the number of hours worked to produce those goods, respectively.

[5] For studies relating to the estimation of productivity at the enterprise or establishment level, see Hulten (2001), Bartelsman and Doms (2000), and Van Biesebroeck (2009).

[6] With regard to the innovative initiatives, market gaps can arise due to the difficulty of the private sector to appropriate the social returns arising from such initiatives.

intellectual property. According to the nature of the impact to be measured, examples of these indicators include total spending on R&D, performance, and the number of patents granted.

Employment-related indicators

Finally, a PDB program can increase employment in participating enterprises. This combination of indicators could, therefore, include the number of employees, the type of employee in terms of qualification level, and the level of staff remuneration. For example, Castillo et al. (2011) presented evidence that the PRE program actually increased both the number of employees and the salaries.

Data

When evaluating the effectiveness of PDB programs, having access to high quality data can make all the difference. The data employed should be readily available, accurate, and reliable. One challenge that faces PDB program evaluations in the LAC region is that secondary data—in other words, data gathered for objectives other than evaluating a certain policy—is not usually available. Although surveys and censuses do exist that could well provide ample information for evaluating and monitoring PDB programs, they are not always available for these purposes. This lack of availability also hinders primary data gathering.[7]

Secondary data

There are three sources of secondary data: surveys, censuses, and administrative registers. Each one of these sources has its advantages and disadvantages, which should be considered during an evaluation.

Surveys have the advantage of enabling a group of businesses to be established with annual information. Furthermore, they provide information about different variables, enabling the evaluator to use matching methods to locate nonbeneficiaries with similar characteristics to the beneficiaries. However, the principal disadvantage of these surveys is that they include only samples of the population, and in many cases, these samples include only a small percentage of the beneficiaries.

Censuses, on the other hand, collect data concerning the total beneficiary population. Therefore, if the beneficiaries are active when the census is conducted, they will be included. Censuses tend to gather more information than surveys, which becomes significant when applying the statistical technique of propensity score matching (PSM). The main disadvantage of censuses is that they are not conducted every year.

[7] For example, as will be further examined below, in order to define a sample of businesses, a list of all the firms in the region or the country should be available. If there is census data, the task becomes more difficult.

Finally, administrative registers refer to a wide range of information about businesses, collected by various institutions for purposes other than evaluation. As with censuses and surveys, these databases can only be used within the institution that administers them, and only under a confidentiality agreement. The main advantage of these administrative databases, compared to surveys and censuses, is that in most cases, they provide annual information regarding each and every business. However, the information is limited and indicators, such as TFP, cannot always be expanded upon.

The administrative databases employed in the evaluations of productive development policies and PDB programs in the LAC region are the following: the Dynamic Analysis of Employment Database (Base de Datos para el Análisis Dinámico del Empleo, or BADE) in Argentina; the Annual Social Information Report (Relação Anual de Informações Sociais, or RAIS) in Brazil; the Internal Revenue Service (Servicio de Impuestos Internos, or SII) in Chile; and Superfinanciera in Colombia.[8] Castillo et al. (2011) consulted BADE in their evaluation of Argentina's PRE program; and both Ribeiro and De Negri (2009) and De Negri et al. (2011) gathered data from RAIS for their evaluations of the loan policies of the National Bank of Social and Economic Development (Banco Nacional de Desenvolvimiento Econômico y Social, or BNDES) and the PDB programs in Brazil, respectively. Finally, Arráiz, Henríquez, and Stucchi (2011) referred to the SII database for the evaluation of Chile's Supplier Development Program (Programa de Desarrollo de Proveedores).

Primary data

When there is no secondary data available, primary data should be collected. The main advantage of being able to collect primary data is that the questionnaire can be made to measure. The disadvantage is cost, as well as the fact that these data tend to cover only a short period of time.[9] A sample questionnaire should be designed, together with an established plan of activities for the PDB program evaluations that require primary data.[10]

[8] The Employment and Business Dynamics Observatory (Observatorio de Empleo y Dinámica Empresarial, or OEDE), part of Argentina's Ministry of Work, Employment, and Social Security, created and administers BADE. Brazil's Ministry of Work and Business (Ministério do Trabalho e Emprego, or MTE) administers RAIS. Colombia's Financial Superintendance (Superintendencia Financiera) maintains Superfinanciera's database. Both access to, and use of, these databases are limited and regulated, according to regulations relating to statistical confidentiality, which are applied by respective administrative authorities.

[9] While it is possible to obtain accounting data for businesses from previous years, this strategy may not be entirely effective since, sometimes, part of the information is not taken from accounting registers, or it is difficult to extract from old registers. Moreover, not all firms have adequate accounting systems, especially micro- and small enterprises.

[10] Sample design is one of the most important activities in any study. In particular, the following elements (at least) should be addressed: (i) the unit of analysis and the strategy to define it, (ii) the selection strategy and the sample size, and (iii) the data-gathering plan. As in most cases, a pilot test should be implemented before a base and monitoring survey can be initiated. Finally, all data-gathering exercises should have a schedule of activities (agreed by all the stakeholders involved), within which the dates for each activity, and the stakeholders responsible, are stipulated.

METHODOLOGICAL STANDARDS

The key element in any evaluation is to construct a credible counterfactual that accurately attributes the results of the policy intervention under evaluation. In particular, there are experimental and quasi-experimental methods for evaluating PDB programs.

This section presents a general description of some of the most commonly applied methodologies. The first subsection examines the experimental design method, currently considered to be the "gold standard" for impact evaluations. Even in those cases in which a complete experimental design is not viable, this often becomes the benchmark for comparison with other methods. In the second subsection, different quasi- and nonexperimental methods are discussed, which can be applied whenever an experimental design is not viable.

The "Gold Standard": Experimental Design

Impact evaluation literature describes the experimental design as being accorded a special status. This type of design is based on randomly dividing a representative sample into a treatment group and a control group. This ensures that there is equilibrium between the treated and untreated units with regard to the average observable and unobservable characteristics. The groups thus become comparable and the selection bias can be eliminated.[11]

Apart from their proven efficacy in solving the problem of the missing counterfactual, experimental designs have other practical advantages. First, randomization allows the average impact of a program to be calculated as a simple difference in means between the treated and control groups, without recourse to the sophisticated econometric techniques necessary in nonexperimental contexts to allow for different types of bias.

Second, randomization can reduce data requirements vis-à-vis other nonexperimental techniques, due to the estimation of the average program impact. This random assignment only requires the post-treatment outcomes for each group, as well as a handful of ex-ante characteristics, to verify that randomization has been successful.

Of course, this does not imply that an efficient database is not an essential requirement for experimental evaluations; the more data available, the more accurate and encompassing the evaluation. For example, gathering data for many years after treatment can help establish a program's long-term effects. Likewise, a good supply of pretreatment outcome data, variables, and other observable factors can significantly improve the accuracy of the estimated impacts, which is of key concern in studies with small sample sizes.

[11] Consequently, it is possible to solve the fundamental problem of casual inference by using a randomly selected control group to calculate the counterfactual result of the treatment group.

Although randomization is becoming the widespread approach for evaluating the impact of public policy in sectors, such as development and labor economics (see, for example, Banerjee and Duflo, 2009), it has yet to be applied to the evaluation of PDB programs. One possible explanation is that it is unlikely that these programs fulfill the criteria (i.e., excess demand) that make a random assignment possible.[12] In general, randomized experiments for evaluating public intervention take advantage of high demand for these services and of supply-side limitations. Under these circumstances, an arbitrary selection of beneficiaries from a pool of possible candidates is a clear and transparent method of guaranteeing that all units (individuals, businesses, etc.) have the same opportunity to participate.

Banerjee and Duflo (2004) present an experimental design for PDB programs. The authors make use of an exogenous variation, generated by a policy change in India, to establish whether or not the enterprises that received direct credits increased their production. The results showed a significant acceleration in the growth rate of sales and profits among the beneficiary enterprises. Another example by Cotler and Woodruff (2008), applies the differences established in the introduction of a new loans program, designed to serve the clients of the largest fast-food company in Mexico (Bimbo). This is done to identify the impact of credit on the results of small retailing firms in Mexico City. The authors discovered that the loans positively impacted the smaller firms, and negatively the larger ones. They claim that these outcomes are consistent with their hypothesis—that smaller enterprises experience greater capital returns and face greater credit constraints.

Quasi- and Nonexperimental Methods

In the absence of a random assignment, the preexisting differences between program participants and nonparticipants can generate biases that severely hamper the estimation of the programs impact. Selection bias is of significant concern, due to two possible sources. First, there could be an administrative bias (or program placement bias), which occurs when program administrators select participants on the basis of specific criteria that differentiate them from nonparticipants. Second, there could be a case of self-selection, which occurs when individuals have agreed whether or not to participate, according to a type of cost–benefit analysis that, again, could lead to significant differences between the pool of participants and nonparticipants.

[12] It is worth highlighting that excess demand is not a necessary condition for applying an experimental design. In effect, randomization is compatible with treating the entire eligible population. For example, randomization is normally used to divide the eligible individuals into different groups, and to arbitrarily assign the order in which they receive treatment, instead of whether or not they actually receive it. This will enable the aggregations, which are treated later, to be used as control groups for those aggregations that were treated earlier. However, certain program characteristics, such as the type of project and the number of applicants, might mean that this type of randomization might not be politically or ethically feasible in some cases, while there remains the need to carry out an impact evaluation. Fortunately, there are numerous nonexperimental techniques that have been created to rep e random assignation as a way of estimating the impact of public programs.

In practice, it is highly likely that there will be a combination of both selection biases: in general, all public interventions have a target population, such as SMEs, young researchers willing to study abroad, or farmers willing to introduce new technologies. Within this target population, individuals or enterprises can decide whether to participate or not. Consequently, a simple preexisting difference in the values between the treated and untreated groups can affect the estimation of program impact and make it inaccurate.

To address this problem, an initial attempt to control the factors that generate selection bias should be made. A few adopted techniques include the following: regression methods, propensity score matching (PSM), difference-in-differences (DD) methods, and fixed effects (FE) methods. A second approach, represented by Instrumental Variables (IV) and the Regression Discontinuity (RD) design, consists of analyzing the specific characteristics of the assignment principles, in order to reproduce the experimental setting.

Regression methods and propensity score matching

As previously mentioned, impact can be calculated as the difference in value between the treated and the untreated groups, within an experimental design program. In turn, this can be equivalent to running a linear regression of the outcome of interest against a constant and a binary variable that indicates the treatment status (treated/untreated). In nonexperimental settings, this regression becomes inadequate, due to the biases previously referred to. However, if all the variables affecting both the treatment status and the outcomes are obvious, it becomes possible to implement control by adding these variables to the linear regression.[13]

To understand how Propensity Score Matching (PSM) works, suppose that treated and untreated individuals only differ by a single variable, X. Thereafter, the matching estimator assigns a unit of comparison to each treated individual with an untreated individual that has the most similar value to X. In this case, the effect of the treatment can be calculated as an average of the differences between the treated units and these units' nearest untreated neighbors in terms of their values of X.[14]

Currently, PSM appears to be the preferred approach in the evaluation of PDBs. For instance, Aivazian, Mazumdar, and Santor (2003) conclude that the World Bank's Small and Medium Scale Industry Program in Sri Lanka has contributed to reducing credit constraints and increasing investment levels in the enterprises that have received subsidies. However, this effect has been rather limited due, to a large

[13] The key assumption here is one that can control, explicitly, for all relevant variables, usually referred to as Conditional Independence Assumption (CIA) or Selection on Observables.

[14] However, when various factors differ between the groups, the idea of closeness is not clearly defined, given that individuals might be similar in some aspects and different in others. To overcome this dimensionality problem, Rosenbaum and Rubin (1983) show that, if all the relevant factors that determine program participation are known, the matching approach between treated and untreated individuals can be conducted. This is based on the conditional probability of participation or the propensity score, which represents the probability of participating in the program for a given value of the vector of characteristics X.

extent, to the relatively small quantity of resources employed for this purpose. Another conclusion arising from the mentioned analysis is that a public guarantee considerably lowers the cost of loans for SMEs.

Difference-in-differences and fixed effects models

DD models arise in the context of "natural experiments." In other words, they arise in situations in which treatment and control groups exist, but a researcher does not design them—rather they appear naturally. Studies often use these models to evaluate the impact of aggregate-level policy changes.[15]

The DD model consists of the application of a double difference. It compares the changes over time in the variable of interest (such as sales or productivity) between a beneficiary population of a program (treated group) and a nonbeneficiary population (comparison group).[16]

The identification assumption, which determines the DD and FE models, is that there are no unobserved factors that vary over time, nor are there any that affect the status of the treatment or outcome. In other words, relevant unobserved factors remain constant over time. Therefore, DD and FE models require that, in the absence of a treatment, it is assumed that the two groups (treated and control) would have the same trends.

The most commonly used approach is to apply the DD method to the databases, combined with PSM, in order to ensure a similarity between participants and nonparticipants. This approach works as follows: when there is available data for the years prior to the program, it is possible to apply PSM to establish nonbeneficiaries with the same ex-ante trends as beneficiaries in the outcome variables. When beneficiaries and nonbeneficiaries with the same characteristics are compared prior to program implementation, including the trends in the outcome variables, it is easier to assume the equilibrium of trends in the absence of the program. Thus, the combination of DD and PSM is a powerful procedure for obtaining effective impact estimations of PDB programs.[17]

For example, Zecchini and Ventura (2006), apply a DD approach to show that public guarantee funds for SMEs, in Italy, increased the credit that these enterprises received from the banking system. Based on

[15] For example, one of the most cited papers that applied this technique is that by Card and Krueger (1994), in which a change of legislation in New Jersey was analyzed to assess the impact of minimum salaries on employment, using Pennsylvania as a comparison group.

[16] This method can easily be extended to multiple groups and time periods, as well as to include control variables (e.g., Imbens and Wooldridge, 2009). Furthermore, the DD estimator can be adapted to cases in which the treatment is assigned at the individual level; this will overcome one of the most significant drawbacks of regressive and matching estimators, given that it allows for the control of selecting the unobserved factors, as long as they are constant over time. Thus, the DD method is an example of a fixed-effect (FE) estimator, which assumes that any unobserved heterogeneity that influences program participation and outcomes is fixed throughout the recorded period.

[17] This procedure comprises three stages: (i) calculate the pretreatment propensity score, (ii) define a common base for businesses through matching, and (iii) utilize a fixed effects model on this base. Heinrich, Maffioli, and Vázquez (2010) present directives for the application of this method, and various authors have carried out evaluations, based on its application.

this result, the authors conclude that, due to the relatively low cost and the State's high capacity to mobilize private capital, guarantee schemes are an effective instruments for promoting SME financing, as long as the focus is placed on those enterprises with the most significant financial constraints.

Also applying a DD methodology, Paravisini (2008) analyzes the effect of a loan program, using World Bank funding, for small Argentine enterprises. He observed that 93 cents out of every dollar invested would have reached the businesses in any case. This outcome suggests that banks implement programs targeting defined beneficiaries to reduce the cost of loans, without substantially increasing the amount of loans approved.

Finally, Bach (2011) demonstrates that the French loan program, the Industrial Development Savings Account (Compte pour le Développement Industriel, or COVEDI), does improve credit flow to small enterprises in France. The findings reveal that access to subsidies considerably augment the financing of loans to businesses. However, Bach concludes that this does not lead to a significant substitution between the subsidized and unsubsidized financing channels, which could be interpreted as financial constraints.

Furthermore, Hall and Maffioli (2008) present a summary of the empirical evaluations in Latin America. Their study reveals that credit programs usually have positive effects on intermediate outcomes, such as when allocating funds for R&D, vocational training, and the introduction of new quality control processes and procedures, especially in developing countries (López Acevedo and Tan, 2010). However, evidence of any impact on performance outcomes over the longer term, such as on sales, exports, employment, labor productivity, or PTF, varies.

As an example, Chudnovsky et al. (2010) analyze Argentina's Technological Fund (Fondo Tecnológico Argentino, or FONTAR), a program designed to improve R&D and technological development through nonreturnable payments. Although the authors establish positive effects that range from a 57 percent to a 79 percent increase in investment in innovation, they find no relevant impact on labor productivity or in sales of new products. Similarly, with regard to Brazil's National Technological Enterprise Development Support (Apoio ao Desenvolvimento Tecnológico da Empresa, or ADTE), a program of subsidies for R&D and technological development, Ribeiro and De Negri (2009) observe an increase of between 50 percent and 90 percent in R&D expenditure, but they find little impact on sales, employment, or labor productivity. Benavente, Crespi, and Maffioli (2007) examine Chile's National Fund for Technological and Productive Development (Fondo Nacional de Desarrollo Tecnológico y Productivo, or FONTEC), which is designed to promote the transfer and development of technologies and to support R&D. The authors calculate an estimated 40 percent increase in sales and a 3 percent increase in export concentration, but they do not find an impact on labor productivity.

Other examples, which are closely related to PDB programs targeting Latin America, are those examined by Ribeiro and De Negri (2009), De Negri et al. (2011), and Eslava, Maffioli, and Meléndez Arjona (2012a and 2012b). For example, De Negri et al. (2011) analyze the effectiveness of public credit lines to

boost performance in Brazilian enterprises. The authors focus on the impact of credit lines, administered by BNDES and by the Brazilian Innovation Agency (Agencia Brasileña de Innovación), on the growth in employment, labor productivity, and exports. They apply a combination of panel data, developed by the Institute of Applied Economic Research (Instituto de Pesquisa Econômica, or IPEA), which gathers information about performance at the firm level and access to credit lines. This particular data setting allows them to apply quasi-experimental techniques to control selection biases when calculating the impact of access to public credit. The basis of their calculation includes a DD strategy, which they complement with matching methods in order to verify impact robustness. The results consistently demonstrate that access to public credit lines does have a significantly positive impact on growth in employment and exports. Additionally, they do not detect significant effects on productivity. It is interesting to note from the conclusions that the impact on exports is owed, primarily, to an increase in the volume of exports by exporting firms; however, there is no significant effect detected regarding the firms' themselves becoming possible exporters.

Eslava, Maffioli, and Meléndez Arjona (2012a) analyze the impact of lending activity on business performance in Colombia's Business Development Bank (Banco de Desarrollo Empresarial, or BANCOLDEX). The use data, gathered over several years, to evaluate the loans made by BANCOLDEX and the performance of manufacturing establishments with 10 or more employees. According to a combination of matching techniques and fixed-effect panel regressions to address the selection biases, they find significant increases in production (24 percent), employment (11 percent), investments (70 percent), and productivity (approximately 10 percent) over the four years following the first BANCOLDEX loan. However, the impact on investments, production, and productivity is derived, primarily, from long-term loans made by BANCOLDEX.

Similarly, Eslava, Maffioli, and Meléndez Arjona (2012b) examine the impact of BANCOLDEX on access to credit. For this purpose, they use a database containing key characteristics of all the loans administered to enterprises in Colombia, including data relating to the financial intermediary, through which the loan was arranged, and whether or not it was financed by BANCOLDEX. The authors compare BANCOLDEX loans with loans from other sources, and they study the impact of receiving a BANCOLDEX loan, based on the prior credit history of an enterprise. To address the problem of selection bias, they apply a combination of controlled models using fixed effects and matching techniques. The conclusions demonstrate that the credit terms relating to BANCOLDEX loans are characterized by lower-than-average interest rates, larger-than-average amounts loaned, and longer-than-average payment terms. However, the effect of the longer-than-average payment term could take up to two years before it can be observed. Finally, the conclusions present a demonstration effect: businesses with access to BANCOLDEX credit are capable of significantly expanding the number of intermediaries with which they share credit relations.

The instrumental variables approach

The institutional variables (IV) approach consists of exploiting certain features of the design and institutional setting of a program in order to find the source of an exogenous variation that best reproduces the conditions of a random trial. Although the theoretical aspects of the IV method may be complex, the perception is simple: it relates to establishing a variable that can influence the probability of participation, but that is not related to other variables that influence the outcome in any way. In other words, an instrumental variable (or, simply, an instrument) is a variable that influences the treatment status, but can also be considered to be "as good as random."

To illustrate how this method works, suppose a PDB program seeks to increase the sales of beneficiary firms in order to adopt new technologies that would enable them to access international markets. In this case, it can be anticipated that some unobserved factors that determine participation by businesses in the program (e.g., entrepreneurs' capacity and motivation) could also have some influence on sales capacity. In this context, a comparison between beneficiaries and nonbeneficiaries would not only reflect the project's impact, but also the intrinsic characteristics of the participating firms.[18]

Although the IV method is an effective tool for evaluating the impact of PDB programs, it is not always easy to find an instrument once a project has been designed. In this case, an effective approach is to implement the project with a so-called "random stimulus," an incentive that arbitrarily persuades firms to participate in the credit program through various mechanisms. For instance, flyers that are distributed to some firms can be a means of showing that a program can reduce the cost of credit. It is, thus, reasonable to believe that the firms that received the flyers are more likely to participate in the program compared with those that were not included in the distribution. Given that the incentive was randomly distributed, there is no reason to suppose that the promotion mechanism is correlated with the outcomes variable, which thereby makes it a reasonable instrument.[19]

Given the difficulties to identify effective instruments, most literature adopting this particular method has concentrated on doing so through random stimulus. One of the best known examples of this approach is presented in Karlan and Zinman (2008). These authors test the hypotheses of inelastic demand for microcredits using data from a randomized field experiment carried out in South Africa. The data include information about previous borrowers from an important for-profit institution that provided

[18] For more details about the characteristics of the IV method and its limitations, see Angrist and Pischke (2009).

[19] Another limitation of the IV approach is that it can only estimate the Local Average Treatment Effect (LATE), which means that its results are relevant only for those enterprises whose behavior is affected by the instrument (Imbens and Angrist, 1994). For example, in the previous case, the results are valid only for those enterprises that participate in the program because of the reduced costs and that, if there were no discount, would not participate. However, the results are not valid for the enterprises that do exploit the discount, but would participate even if there were no discount. Furthermore, it is important to consider the problem of instrument weakness (e.g., Bound, Jaeger, and Baker, 1995): when an instrument is weak, it can generate biases and increase the standard errors of the IV estimation.

micro-consumer loans to poor workers. Karlan and Zinman first calculate the price elasticity of demand for consumer loans by offering, through mailing, a random interest rate to each one of the more than 50,000 previous customers. Subsequently, they calculate the time period elasticity by, again, mailing with randomly assigned suggestions to draw a selection of certain time periods.

Although this type of design has not been fully implemented in the study of PDBs, it can be easily adapted. For example, the evaluation plan for a loan that the Inter-American Development Bank (IDB) recently provided to a PDB in Mexico adopts a random stimulus design that includes a random assignment of publicity campaigns concerning new financial products in a given region. Similarly, a project in Ecuador, supported by the IDB, intends to randomize information about the availability of a line of credit to the passive clients of microcredit institutions, the latter relating to the national Tier 2 microcredit fund. In both cases, if the publicity campaigns prove sufficiently effective to influence the acceptance of lines of credit, they could be used as a powerful IV approach for the evaluations of these lines of credit.

Regression discontinuity

Regression discontinuity (RD) is another powerful approach for identifying the impact of a PDB program on firm performance. It is based on the idea that, in a world highly governed by regulation, some of these regulations are arbitrary and, thus, provide natural experiments. In this framework, the approach measures the average effect of a treatment on the discontinuity that determines which enterprises are assigned to the treatment (receive the program) and which ones are assigned to the control group (do not receive the program). The perception behind this approach is that the treated units just above the cut-off point are very similar to the control units just below it, which enable the results to be compared without incurring any bias. Regression discontinuity designs are presented in two forms: sharp and fuzzy. The former are based on a selection of observables, whereas the latter suggest the use of instrumental variables (Angrist and Pischke, 2009).

A good example of a sharp regression discontinuity is a PDB program that provides lines of credit for firms, according to their specific credit history: those that are found above the threshold can benefit from the program and those located below form part of the control group. This scheme has the advantage that the credit rating can be determined outside of the financial institution providing the loan, by a central authority or other entity, thereby enhancing the transparency of the selection process.

A fuzzy regression discontinuity differs from a sharp one in that there is no single value that perfectly determines the treatment and control groups. Rather, there is a variable that influences the probability of treatment. In this case, the variable that influences program participation can be used as an instrumental variable to predict the treatment. Since this type of regression discontinuity can be seen as a special element within the IV model, its advantages and limitations are the same as the latter.

For example, Bubb and Kaufman (2009) argue that investment banks in the United States adopted issuer selection rules (with cutoff points), based on credit ratings, in response to the Fannie Mae and Freddie Mac subscription directives. The authors offer a simple model that rationalizes this general rule of origin, and suggest that the increase in defaulted loans is not sufficient proof that securitization has led to lax screening. They analyze the data relating to the loans in detail and, based on a regression discontinuity design, they discover that the evidence is, on the one hand, inconsistent with the theory of the automatic securitization rule and, on the other hand, consistent with the theory of the automatic rule of origin. They also document an increase in the number of loans and in the rate of defaults at the credit rating cutoff point, while there is no corresponding increase in the securitization rate. Finally, they conclude that the cutoff point rules, based on credit ratings, provide evidence that the major securitizers are, to a certain point, capable of modifying the behavior of the investment banks.

Furthermore, on the basis of a regression discontinuity framework, Skiba and Tobacman (2007) benefit from a credit-rating process, used to approve or deny payday loan applications, in order to study the causal impact of access to these loans on payday loan uptake, bankruptcies, and misdemeanors. They present evidence that those employees who were approved for payday loans requested on average 8.8 more payday loans, until their debt reached US$2,400 (with an additional US$350 in financing charges). Based on this evidence, it is unlikely that the behavior associated with payday loans is determined by temporary shocks to consumer needs. Approval of these payday loans reduces the incidence of short-term collateral loans, but this reduction dissipates after a few weeks.

Structural models

When selecting the best empirical approach for analyzing economic data, it is key for an analyst to establish which questions need answers. Explicit economic models facilitate the formulation of economic questions. Defenders of nontheoretical approaches to analyzing economic data suggest randomization as a model, and invoke the IV, PSM, or regression discontinuity methods as substitutes for randomization. However, even perfectly executed randomizations fail to respond to all economic questions. There are clear examples that show that structural models generate more information on preferences than experiments do.

Structural models seek to utilize data to define the parameters of an underlying economic model, based on individual choice models, or on the aggregate relationships deriving from them. Structural calculus enjoys a long tradition in economics, but it is only recently that better and wider databases have become available, in parallel to more powerful computers, perfected modeling methods, faster computing techniques, and new econometric models (e.g., those mentioned above), which have enabled significant progress. Based on a group of assumptions, these kinds of models permit the calculation of the contribution of a given policy change to the economy. The works of Todd and Wolpin (2006), Keane

and Wolpin (1997), and Attanasio, Meghir, and Santiago (2010) present examples of this methodology, although not necessarily applied to PDBs.

RESOURCES

To be comprehensive, an evaluation plan must clearly identify the resources needed for its execution, which include: (i) choosing the evaluation team and defining the respective responsibilities and tasks, (ii) setting the budget and the work plan, and (iii) identifying the source of financing.

The Evaluation Team

Ideally, a combination of external evaluators and expert managers should make up the evaluation team (in other words, professionals who are involved in implementing the program). The external evaluators guarantee both greater independence, because they are much more involved in the success of the evaluation than in the success of the program (this way, a high degree of objectivity and credibility can be obtained), and higher concentration, because they are exclusively dedicated to the evaluation, rather than to the implementation of the project.

The professionals involved in implementation are crucial to ensuring that (i) the program's objectives and its execution mechanisms are clearly understood; (ii) there is easy and timely access to data and information about the project; and (iii) there is a fluid dialogue with the authorities and greater recognition for the results of the evaluation.

The evaluation plan must specify the capacities and technical knowledge required for a successful evaluation. Although it is difficult to generalize the exact composition of an ideal team (which depends on the program and the available resources), the team should, at least, be able to collectively offer knowledge of (and experience in) the following:

1. Design of evaluations, including the evaluation method and interpretation of the statistical power.
2. Negotiation of the evaluation design with the main stakeholders.
3. Design and administration of data gathering, which ranges from designing the questionnaire, developing sample plans, and collecting information in contexts that are relevant to the project to be evaluated.[20]

[20] If the project team decides to contract external individuals or firms to contribute to managing the impact evaluation, it would be useful to consider the evaluation and data gathering as two separate elements that can be executed, theoretically, by two separate individuals or agencies. For this model to succeed, the two individuals or agencies have to work cohesively, and it is recommended that the entity that solicits the evaluation play a role in its coordination.

4. Design of systems to protect the integrity of the evaluation.
5. Review of the statistical analysis for estimating the impacts.
6. Presentation of the conclusions to a wide spectrum of audiences, including academics and policymakers.

Irrespective of the exact composition of the team, the management of the program and implementation of the evaluation are interrelated, and should not function as independent and separate activities.

Financial Resources

The evaluation plan should include a detailed calculation of the resources necessary to finance the evaluation. Therefore, the design of the plan should include a work plan that describes who will carry out what activity, and when. It is recommended to allocate a budget to each activity, in order to accurately define the financing needs, mobilize resources, and ensure that available funding levels are adequate (Gorgens and Kusek, 2009). It is also important to distinguish the cost between monitoring and evaluation activities. Table 3.1 presents an example of a budget for an impact evaluation work plan.

A significant component related to the cost of any evaluation is the combination of resources needed for data gathering. A recent study regarding World Bank impact evaluations concludes that more than half of the resources earmarked for an evaluation go toward data collection (see Gertler et al., 2011). The cost of compiling information depends on various factors. However, the two key factors are sample size and the number of data-gathering rounds. It is, therefore, essential to carefully consider these two factors during the early phases of evaluation design.

TABLE 3.1: IMPACT EVALUATION AND WORK PLAN BUDGET

DESCRIPTION OF TASKS	YEAR 1				YEAR 2				YEAR 3				PERSON RESPONSABLE	COST (US$)	SOURCE OF THE RESOURCES
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
I. Impact Evaluation															
Staff															
Program evaluation personnel (evaluation manager, etc)															
International and local consultants (chief researcher)															
Research assistant															
Statistics expert															
Field study coordinator															
Trips															
International and domestic flights															
Local land transport															
Expenses (hotels and sundries)															
Data Gathering[a]															
Instrument Design															
Pilot test															
Training															
Travel and expenses															
Survey material and equipment															
Printed questionnaires															
Fieldwork staff															
Survey staff															

continued ⟶

TABLE 3.1: IMPACT EVALUATION AND WORK PLAN BUDGET *(continued)*

DESCRIPTION OF TASKS	YEAR 1				YEAR 2				YEAR 3				PERSON RESPONSABLE	COST (US$)	SOURCE OF THE RESOURCES
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
Supervisors															
Transport (vehicles and fuel)															
Drivers															
Data Digitalization															
Data cleaning and digitalization															
Data Analysis and Dissemination															
Workshops															
Documents, reports															
Other															
Office space															
Communications															
Software															
Impact Evaluation Report															
Final report															

[a] Calculation of the cost of data-gathering should reflect assumptions such as the number of rounds necessary, how long data-gathering will last, number of communities in the sample, number of households per community, questionnaire length, duration of field trips, etc.

CONCLUSIONS

To be successful, the design of an impact evaluation of a PDB program must incorporate the following key aspects. First, it must account for the externalities of the beneficiary firms, given that economies of scale can arise. Moreover, impacts of PDB programs can take some time before they become apparent. Therefore, for any impact evaluation, it is fundamental to establish the distribution of a program's effects over time. Furthermore, it could be the case that firms take differing amounts of credit from the program, or that they participate by taking out loans at different times. It is, thus, vital to consider treatment intensity and dosage effects. Finally, two additional elements should be considered for evaluating a PDB program: (i) the potential multiple treatments that arise, whenever a beneficiary firm accepts additional credit from other institutions in the market; and (ii) the heterogeneous nature of the impact, when there are varying effects for different beneficiary groups.

Second, in an analysis of the effectiveness of a PDB program, the use of quality data can make all the difference in the evaluation outcome. The data used should be available, accurate, and reliable. In this sense, the quality of the data, whether primary or secondary, is also an indispensable element for a successful evaluation.

Finally, it is possible to apply different methodologies—both experimental and quasi-experimental—to the evaluation of PDB programs. As a general rule, an experimental methodology guarantees the quality of both the counterfactual and the outcomes. However, the general challenge is to select the methodology that best suits the particular circumstances of each program.

In Latin America and the Caribbean, despite the fact that the empirical evidence is still scarce, researchers have begun to document the effectiveness of PDB-related programs. Those impact evaluations are based on rigorous methodologies and reliable data and, in general, seek to control for several of the previously mentioned relevant factors. However, a clear—but also stimulating—challenge remains in the future, given the wide variety of PDB programs and the methodologies currently available.

BIBLIOGRAPHICAL REFERENCES

Aivazian, V., D. Mazumdar, and E. Santor. 2003. "Financial Constraints and Investment: Assessing the Impact of a World Bank Loan Program on Small and Medium-Sized Enterprises in Sri Lanka." Working Paper No. 2003–37. Ottawa, Canada: Bank of Canada.

Angrist, J. D. and J-S. Pischke. 2009. *Mostly Harmless Econometrics: An Empiricist's Companion*. Princeton, NJ: Princeton University Press.

Arráiz, I., F. Henríquez, and R. Stucchi. 2011. "Impact of the Chilean Supplier Development Program on the Performance of SME and their Large Firm Customers." Working Paper No. OVE/WP-04/11. Washington, DC: IDB.
Available at: http://idbdocs.iadb.org/WSDocs/getdocument.aspx?docnum=36182301.

Attanasio, O., C. Meghir, and A. Santiago. 2010. "Education Choices in Mexico: Using a Structural Model and Randomized Experiment to Evaluate Progress." London: Institute of Fiscal Studies. Unpublished.

Bach, L. 2011. "Are Small Businesses Worthy of Financial Aid? Evidence from a French Targeted Credit Program." *Review of Finance* (2013) doi: 10.1093/rof/rft022.

Banerjee, A. V. and E. Duflo. 2004. "Do Firms Want to Borrow More? Testing Credit Constraints Using a Directed Lending Program." CEPR Discussion Paper No. 4681. London: CEPR.
Available at: http://ideas.repec.org/p/cpr/ceprdp/4681.html.

———. 2009. "The Experimental Approach to Development Economics." *Annual Review of Economics, Annual Reviews*, 1(1): 151–78.

Bartelsman, E. J. and M. Doms. 2000. "Understanding Productivity: Lessons from Longitudinal Microdata." *Journal of Economic Literature* 38(3): 569–94.

Benavente, J. M., G. Crespi, and A. Maffioli. 2007. "Public Support to Firm-Level Innovation: An Evaluation of the FONTEC Program." OVE Working Paper No. OVE/WP-05/07. Washington, DC: IDB.
Available at: http://idbdocs.iadb.org/WSDocs/getdocument.aspx?docnum=1323102.

Bound, J., D. A. Jaeger, and R. Baker. 1995. "Problems with Instrumental Variables Estimation when the Correlation between the Instruments and the Endogenous Explanatory Variables Is Weak." *Journal of the American Statistical Association* 90: 443–50.

Bubb, R. and A. Kaufman. 2009. "Securitization and Moral Hazard: Evidence from a Lender Cutoff Rule." Public Policy Discussion Document No. 09–5. Boston, MA: Federal Reserve Bank of Boston.

Caliendo, M. and S. Kopeinig. 2008. "Some Practical Guidance for the Implementation of Propensity Score Matching." *Wiley Blackwell* 22(1): 31–72.

Card, D. and A. B. Krueger. 1994. "Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania." *American Economic Review* 84(4): 772–93.

Castillo, V., A. Maffioli, S. Rojo, and R. Stucchi. 2011. "Innovation Policy and Employment: Evidence from an Impact Evaluation in Argentina." IDB Technical Notes No. IDB-TN-341. Washington, DC: IDB.
Available at: http://www.iadb.org/en/publications/publication-detail,7101.html?id=29206.

Chudnovsky D., A. López, M. Rossi, and D. Ubfal. 2010. "Evaluating a Program of Public Funding of Private Innovation Activities: An Econometric Study of FONTAR in Argentina." OVE Working Paper No. OVE/WP-03/10. Washington, DC: IDB.
Available at http://www.iadb.org/en/publications/publication-detail,7101.html?id=19292.

Cotler, P. and C. Woodruff. 2008. "The Impact of Short-Term Credit on Microenterprises: Evidence from the Fincomun-Bimbo Program in Mexico." *Economic Development and Cultural Change* 56: 829–49.

De Negri, J. A., A. Maffioli, C. M. Rodríguez, and G. Vázquez. 2011. "The Impact of Public Credit on Brazilian Firms." IDB Working Paper No. IDB-WP-293. Washington, DC: IDB.
Available at: http://www.iadb.org/en/publications/publication-detail,7101.html?id=31526.

Eslava, M., A. Maffioli, and M. Meléndez Arjona. 2012a. "Second-Tier Government Banks and Firm Performance: Micro-Evidence from Colombia." IDB Working Paper Series No. IDB-WP-294. Washington, DC: IDB.
Available at: http://www.iadb.org/en/publications/publication-detail,7101.html?id=31446.

———. 2012b. "Second-Tier Government Banks and Access to Credit: Micro-Evidence from Colombia." IDB Working Paper Series No. IDB-WP-308. Washington, D.C.: IDB.
Available at: http://www.iadb.org/en/publications/publication-detail,7101.html?id=36046.

Frölich, M. and B. Melly. 2009. "Unconditional Quantile Treatment Effects under Endogeneity." IZA Discussion Paper No. 3288. Bonn, Germany: IZA.

Gertler, P. J., S. Martínez, P. Premand, L. B. Rawlings, and C. M. J. Vermeersch. 2011. *La evaluación de impacto en la práctica*. Washington, DC: World Bank.

Gorgens, M. and J. Z. Kusek. 2009. *Making Monitoring and Evaluation Systems Work: A Capacity Development Toolkit*. Washington, DC: World Bank.

Hall, B. and A. Maffioli. 2008. "Evaluating the Impact of Technology Development Funds in Emerging Economies: Evidence from Latin America." NBER Working Paper No.13835. Cambridge, MA: NBER.

Heckman, J. J., J. Smith, and N. Clements. 1997. "Making the Most Out of Program Evaluations and Social Experiments: Accounting for Heterogeneity in Program Impacts." *The Review of Economic Studies* 64(4): 487–535 (Special Issue: Evaluation of Training and Other Social Programs).

Heinrich, C., A. Maffioli, and G. Vázquez. 2010. "A Primer for Applying Propensity-Score Matching." IDB Technical Note No IDB-TN-161. Washington, DC: IDB.
Available at: http://www.iadb.org/en/publications/publication-detail,7101.html?id=8240.

Henderson, V., A. Kuncoro, and M. Turner. 1995. "Industrial Development in Cities." *Journal of Political Economy* 103(5): 1067–90 (October).

Holland, P. 1986. "Statistics and Causal Inference." *Journal of the American Statistical Association* 81(396): 945–60.

Hulten, Ch. R. 2001. "Total Factor Productivity: A Short Biography." In: Ch. Hulten, E. R. Dean and M. Harper (eds.), *New Developments in Productivity Analysis, Studies in Income and Wealth*. Chicago, Illinois: University of Chicago Press.

Imbens, G. W. and J. D. Angrist. 1994. "Identification and Estimation of Local Average Treatment Effects." *Econometrica* 62(2): 467–75.

Imbens, G. W. and J. M. Wooldridge. 2009. "Recent Developments in the Econometrics of Program Evaluation." *Journal of Economic Literature* 47(1): 5–86.

Karlan, D. S. and J. Zinman. 2008. "Credit Elasticities in Less-Developed Economies: Implications for Microfinance." *American Economic Review* 98(3): 1040–68..

Keane, M. P. and K. I. Wolpin. 1997. "The Career Decisions of Young Men." *The Journal of Political Economy* 105(3): 473–522.

López Acevedo, G. and H. Tan. 2010. *Impact Evaluation of SME Programs in Latin America and the Caribbean*. Washington DC: World Bank.

Marshall, A. 1920. *Principles of Economics* (revised edition). London: Macmillan (reissued by Prometheus Books).

Paravisini, D. 2008. "Local Bank Financial Constraints and Firm Access to External Finance." *Journal of Finance* 63(5): 2161–93.

Ribeiro, E. P. and J. A. De Negri. 2009. "Public Credit Use and Manufacturing Productivity in Brazil." Unpublished.

Rosenbaum, P. and D. Rubin. 1983. "The Central Role of the Propensity Score in Observational Studies for Causal Effects." *Biometrika* 70: 41–55.

Skiba, P. M. and J. Tobacman. 2007. "Measuring the Individual-Level Effects of Access to Credit: Evidence from Payday Loans." Job Market Paper. Berkeley, CA: University of Berkeley.
Available at: http://www.clevelandfed.org/research/conferences/2007/october2/skibajmpaper.pdf.

Todd, P. and K. Wolpin. 2006. "Using Experimental Data to Validate a Dynamic Behavioral Model of Child Schooling and Fertility: Assessing the Impact of a School Subsidy Program in Mexico." *American Economic Review* 96(5): 1384–1417.

Van Biesebroeck, J. 2009. "Disaggregate Productivity Comparisons: Sectorial Convergence in OECD Countries." *Journal of Productivity Analysis* 32(2): 63–79.

Volpe Martincus, C. and J. Carballo. 2008. "Is Export Promotion Effective in Developing Countries? Firm-Level Evidence on the Intensive and the Extensive Margins of Exports." *Journal of International Economics* 76(1): 89–106.

Zecchini, S. and M. Ventura. 2006. "Public Credit Guarantees and SME Finance." Institute for Studies and Economic Analyses (ISAE) Working Paper No. 73. Rome, Italy: ISAE.
Available at: http://lipari.istat.it/digibib/Working_Papers/WP_73_2006_Ventura.pdf.

APPENDIX 3.1[21]

The idea of a counterfactual can be formalized using the Rubin Causal Model (RCM) (Holland, 1986), as follows: Y1 and Y0 denote the potential outcomes for an individual with and without treatment, respectively. The result Y observed for an individual is Y1 if the individual is treated and Y0 if not. The binary variable T shows the status of the treatment of the individuals, with T=1 for those that participate and T=0 for those that do not participate. The result can therefore be expressed as:

$$Y = Y_0.(1-T) + Y_1.T$$

In this context, Y0 is the counterfactual outcome for the units treated and Y1 is the result for the untreated ones. The impact of the program for the individual I, which cannot be observed, is defined as the difference between the two potential outcomes:

$$\delta_i = Y_{1i} - Y_{0i}$$

In general, impact evaluations focus on calculating the average effect of the treatment, rather than the individual effect. In practice, various "average effects" can be calculated.

First, the average treatment effect (ATE), which is the average impact of the treatment on the population as a whole:

$$ATE = E(\delta) = E(Y_1 - Y_0)$$

Second, the ATT is the average impact of the treatment on the treated population:

$$ATT = E(\delta | T = 1) = E(Y_1 - Y_0 | T = 1)$$

Third, the average effect on the untreated (ATU) is the impact that the program would have had on the population that did not participate in the program:

$$ATU = E(\delta | T = 0) = E(Y_1 - Y_0 | T = 0)$$

However, none of these parameters can be observed. For example, the ATT can be rewritten as:

[21] This Appendix is based on Heinrich, Maffioli and Vázquez (2010).

$$ATT = E(Y_1 \mid T = 1) - E(Y_0 \mid T = 1)$$

where the second term is not observable, given that it measures the average result that the treated population would have obtained without treatment. One possibility is to exchange the second term for $E(Y_0 \mid T = 0)$, which is the average observed result for the untreated population. Therefore:

$$\Delta = E(Y_1 \mid T = 1) - E(Y_0 \mid T = 0)$$

$$\Delta = E(Y_1 \mid T = 1) - E(Y_0 \mid T = 1) + E(Y_0 \mid T = 1) - E(Y_0 \mid T = 0)$$

$$\Delta = ATT + SB$$

Where the final term is usually called the selection bias (SB). This term reflects the difference in the counterfactual between the individuals treated and the results observed in the untreated individuals. Unless the bias is zero (which is very unlikely in practice), econometric techniques will have to be used to correctly calculate the average impact of the program.

CHAPTER 4

Partial Credit Guarantees: Best Practices for Design and Management

Frank Nieder

- Partial credit guarantee schemes can be the most effective and efficient instrument for addressing market failures that limit access to finance. Their effectiveness in enhancing access to credit in underserved markets stems from their capacity to mitigate the risks and costs of lending to underserved market segments. In turn, the greater leverage achieved with public resources makes them more efficient in fiscal terms.
- The good design and optimum management of a guarantee scheme requires the alignment of the incentives for the actors involved (financial institutions, guarantee agencies, and government) with the goal of increasing access to credit, without compromising the scheme's financial sustainability.

CREDIT GUARANTEES IN LATIN AMERICA AND THE CARIBBEAN

Credit guarantees are one of the financial instruments most frequently employed by governments worldwide to promote credit flows toward economic sectors or segments with limited credit access, in particular small- and medium-size enterprises (SMEs). Credit guarantee funds have been in use since the beginning of the twentieth century (Beck, Klapper, and Mendoza, 2008).

The Latin America and the Caribbean (LAC) region has gained wide experience in this area, given that 15 countries have used public sector credit guarantees and there are currently 10 programs in operation (Pombo, Molina, and Ramírez, 2010). Furthermore, many countries operate several funds through a wide range of institutional and financial structures. At the institutional level, public sector banks or financial institutions (FIs) that also offer other financial services manage some programs, and institutions exclusively specializing in credit guarantees manage others. In some cases, funds are managed with separate balance sheets, and their liabilities are backed directly by the central government. In other cases, the FI itself backs them with an indirect central government guarantee.

In spite of the generalized use of credit guarantee programs, the number of rigorous impact evaluations undertaken to date is limited, and studies identifying best practices—especially with regard to the latest experiences—are scarce. Based on the few evaluations, the results with regard to program goal achievements are mixed (Honohan, 2010). However, they do indicate that, under certain circumstances,

programs can be effective in improving access to credit and in leveraging fiscal resources, as long as they are well designed and implemented.

It is worth highlighting that access to public sector credit guarantee schemes is rather limited in the LAC region in comparison with other regions, especially Asia (Beck, Klapper, and Mendoza, 2008). This indicates that access to credit could be significantly improved in the region, if more countries were to manage well-designed and well-executed credit guarantee schemes, and if the resources allocated to them were increased.

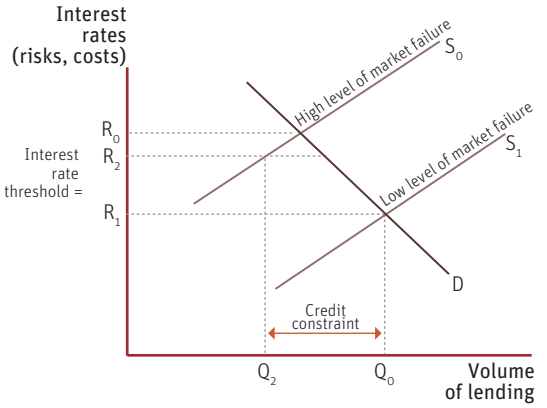
The aim of this chapter is to make use of the available information relating to public sector credit guarantee scheme outcomes—from both within and outside the LAC region—in order to identify what the key design and implementation factors should be when structuring successful credit guarantees, both in terms of their effectiveness (additionality) and efficiency (the use of public sector resources). The following section discusses the theoretical impact credit guarantees could have on the market, and then analyzes their actual impact in terms of effectiveness and efficiency, as well as the lessons learned. The final section provides some recommendations for developing an effective credit guarantee program.

THEORETICAL IMPACT AND POTENTIAL ADVANTAGES

Public policy instruments can often address the existence of market failures in financial markets. These failures are caused, in part, by information irregularities between the FI and the client, and the risk related to client behavior. Partial credit guarantee schemes are one of the most effective instruments to resolve the situation and, in most cases, could prove to work better than other instruments, such as Tier 1 and Tier 2 public sector loans. They can reduce the credit risk of the FI, and enable the flow of loans to those microenterprises and small- and medium-size enterprises (MSMEs) that have a good credit profile, but still face credit constraints.

Credit guarantee systems, therefore, can benefit the private financial sector by creating market incentives for it to increase its share in financing. While Tier 2 credit systems involve the private financial sector, they actually protect the financing limits of the FIs themselves, without reducing the risk of lending to a specific sector. FIs in numerous LAC countries, in particular, face significant constraints, especially with regard to long-term loans; therefore, Tier 2 schemes could prove to be an effective instrument. However, in most countries in the region, this does not apply to working capital loans, which represent the major source of financing for MSMEs. Finally, an additional advantage of credit guarantees is that, in most countries, loans backed by guarantees entail lower reserve and capital requirements, thus reducing their real cost to FIs.

FIGURE 4.1: CREDIT MARKETS, ACCORDING TO DIFFERENT MARKET FAILURE LEVELS



Source: Author's elaboration.

Impact of Guarantee Schemes on Financial Markets

As Figure 4.1 illustrates, market failures have an influence on access to credit. Axis Y represents the interest rates, as well as the risks and costs to the FI, while axis X represents the volume of lending. The supply curve S1 represents the costs and risks to the FI with minimum market failures. In this case, there is a market clearing interest rate R0 and a volume of lending represented by Q0. S0 is the supply curve with a high level of market failure, and it indicates the highest perceived risks and costs by the FI.

As Stiglitz and Weiss (1981) indicate, when there is a high level of market failure, no single interest rate will be able to cover the entire market (market clearing rate). This is because FIs do not lend to those enterprises that are willing to pay the high market rate (R1), since the FIs believe that it is only those projects/enterprises with a higher risk that would be willing to accept the high rate. As a result, FIs establish a lower interest rate threshold (R2) and limit the number of firms to which they are willing to provide loans (Q2). The distance between Q0 and Q2 represents the amount of lending not provided due to market failures. Of particular interest is that this model of credit constraint does not refer solely to businesses that lack access to credit from regulated FIs; rather, it includes the lowest level of credit that a business can receive, compared with what would be available in the absence of market failures.

Figure 4.2 illustrates the impact of a credit guarantee program. This type of program can reduce the risk of the loan. This is represented as a downward shift in the supply curve of the FI to S3.[1] By reducing risk and cost, a credit guarantee program could motivate FIs to accept a lower interest rate (R3) and to increase the volume of lending (Q3). The result is a reduction in credit constraints, as represented by the difference between Q3 and Q2. It should be emphasized that this is indicative of the impact that occurs if a partial guarantee is offered (i.e., the lender continues to assume, at least, part of the credit risk).

Figure 4.3 shows the impact of the financial terms of a guarantee program on the market, such as the guarantee level (percentage of the value of the guaranteed loan) and the relevant fee (guarantee

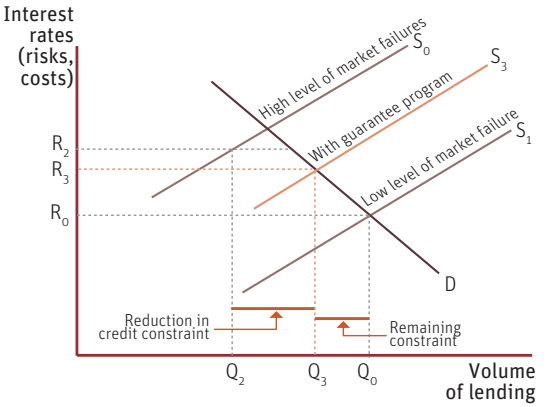
[1] The implementation of financial mechanisms that enable institutions to lessen risk and cost, without the need to introduce improvements in the legal, regulatory, or institutional framework, could also be represented as a downward shift in the supply curve.

price). The higher the level of guarantee, the lower the risk assumed by the FI and, therefore, the greater the change in the supply curve and in the amount of credit that a bank is willing to offer. A scheme with higher coverage is represented by S4. A higher fee would have the opposite effect, given that it would increase the price paid by the firms and would raise the real interest rate charged by the bank. The guarantee fee is represented diagrammatically by the difference between R5a and R5b, and the associated reduction in credit produces the difference between Q4 and Q5.

It should be kept in mind that, within limits, businesses willing to pay a higher rate of interest would be those of higher risk and, therefore—all things being equal—the higher the price, the higher the risk to the guarantee portfolio. However, those enterprises with the highest risk would have least access to credit and, therefore, the highest guarantee fee would enable FIs to aim their credit guarantee programs at those firms experiencing the most significant credit constraints.

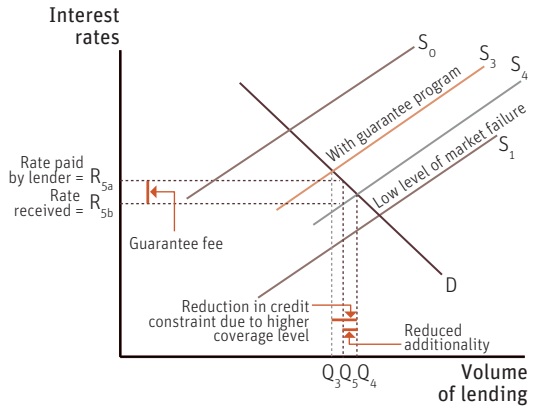
It is possible to draw various conclusions from this microeconomic analysis. First, a guarantee program would be more effective in extending access to credit in those countries with greater market failures, such as those countries in the LAC region. In an environment with significant market failures, there would be a greater credit constraint and, therefore, the number of businesses that might benefit from a guarantee would be higher. In contrast, in more developed economies with more limited market failures, the market clearing rate reflects the true credit risk of a firm in the target market. In this case, extending access to credit through the use of credit guarantee

FIGURE 4.2: MARKETS WITH CREDIT GUARANTEE PROGRAM



Source: Author's elaboration.

FIGURE 4.3: IMPACT OF A PROGRAM'S FINANCIAL TERMS INTEREST RATE



Source: Author's elaboration.

schemes would suggest that lending rates are too low and fail to reflect a firm's real credit risk. As a result, greater losses can occur with the consequent need for subsidies. Furthermore, for FIs to expand their lending, the guarantee terms should be fair with regard to price and coverage.

Second, guarantee systems need to strike a balance between the different effects of the loan terms. More generous terms (i.e., greater coverage level and lower guarantee fee) should generate greater the additionality in terms of both the level of credit and lower interest rates. Less generous terms would help to maintain the financial stability of the guarantee scheme, since higher fees and lower coverage rates would enable FIs to provide credit for businesses with lower risk profiles, thereby reducing the probability of nonpayment on the guarantees.

Third, the lack of competition in the credit market would influence the effectiveness of a guarantee scheme. In the absence of competition, FIs would pass on a smaller part of the financial benefits of the guarantee and, therefore, the demand for guaranteed loans would decrease.

Impact on Market Failures

The above presumes that the main reason to establish a credit guarantee program would be as a substitute for the regulatory reforms that tend to reduce market failures and increase the implementation of more effective financial technologies. However, credit guarantee schemes, themselves, can also help to reduce market failures.

First, by increasing the number of businesses with access to credit, a credit guarantee program would increase the number of firms that have a credit history, which would be available to lenders, increasing the latter's capacity to evaluate the ability and compliance of firms to repay the loans. In turn, the increase in the number—and diversity—of firms with access to credit would contribute to more precise credit ratings.

Second, a partial credit guarantee program would produce valuable lessons. For example, as FIs increase their loans to small- and medium-sized enterprises (SMEs) as a result of guarantee programs, their knowledge and experience, related to this sector, would improve. Likewise, in terms of economies of scale, there may be a greater incentive to develop specialized financial technologies that can mitigate the impact of market failures.

REAL IMPACT

Efficiency Achieved by Leveraging

One of the greatest advantages of credit guarantee schemes is that they can be highly efficient in generating additional credit with an established amount of fiscal contributions. In the absence of direct

subsidies, fiscal contributions are equivalent to that of capital resources in any given fund. The exposure of a guarantee program can, essentially, be uncertain, with the possibility that its value could be several times less than the amount covered by the guarantee, unless the program design has included a risk analysis of the loan. The difference between the real value of the guarantee and its nominal value provides an opportunity to leverage capital and, therefore, to leverage the fiscal contributions. The amount of leverage that is possible, based on financial sustainability without subsidies, depends on the portfolio's risk and the effectiveness of aligning price and coverage levels.

From a fiscal perspective, a guarantee program with leverage could be, potentially, more attractive than a loan program, whether it is a Tier 1 or Tier 2 bank. By applying the average ratios for the LAC region, for every dollar worth of fiscal contribution, a guarantee program would generate US$7.3 of credit for a specific credit market (the effective leverage rate). Thus, for a target of US$100 million, a credit guarantee program would require only US$13.7 million in fiscal contributions, whereas a lending program, assuming a 10 percent capital requirement, would require US$110 million.

Given the varying circumstances and policy objectives of each country, the levels of guarantee coverage and leverage may differ considerably. Compared with developed economies, LAC guarantee funds tend to be lower in both, reflecting more prudent financial policies and, usually, a higher default rate in the target sector. Consequently, although the financial leverage ratio for advanced economies is nearly four times higher than that in LAC countries—due to coverage levels in the latter region being much lower (i.e., half of those found in developed economies)—the effective leverage of advanced economies is nearly twice that of the economy of the LAC region[2] (see Table 4.1).

Therefore, the effective leverage ratio in some of the LAC region's largest guarantee funds is equal to—or surpasses—that of advanced economies, despite the latter's lower leverage ratio. Moreover, it is worth highlighting that programs in advanced economies require substantial subsidies in order to maintain fiscal balance. Consequently, it is likely that fiscal contributions, relative to the level of guaranteed loans, are significantly larger than in most LAC countries, even though the leverage ratio tends to be higher.

Finally, it is important to emphasize that the alternative to guarantee system effectiveness (in fiscal terms) is the greater risk of loss and, therefore, there would be a need for additional capital. For example, with a leverage ratio of 10, the increase of each percentage point in the credit portfolio default ratio suggests an increase of 10 percent of additional capital to maintain the leverage ratio, unless the credit fees cover the increase in the default ratio.

Given this leveraging impact, it is crucial that leverage ratios and guarantee fees are aligned with portfolio risk, and that the financial terms offered will create the incentive to encourage participating FIs to offer creditworthy loans. Perhaps the most significant incentive is the rate of coverage. The lower this

[2] Effective leverage is equivalent to financial leverage/coverage rate.

TABLE 4.1: GUARANTEE SCHEME LEVERAGING
(IN PERCENT)

	LEVERAGE	SUBSIDY[a]	EFFECTIVE LEVERAGE	COVERAGE
LAC region	**3.3**	**Rare**	**7.3**	**45**
Colombia/FNG	6.3	No	12.5	50
Chile/FOGAPE	8.5	No	13.2	64
Mexico/ NAFIN	3.3	No	15.4	37
Developed economies	**12.1**		**13.7**	**92**
Spain and Portugal	9.2	Yes	9.0	102
United States and Canada	15.1	Yes	18.5	82

Source: Pombo, Molina, and Ramírez (2013); Palma Arancibia (2012).
Notes: These figures correspond to 2010, except in the case of Colombia (2011).
[a] The absence of subsidies in LAC programs is reflected in the latter's financial sustainability. The guarantee fees charged are assumed to be sufficient to cover the cost of the programs in terms of risk/losses, as well as the operating costs. In developed economies, the fees have proved to be insufficient to cover these same costs.

FNG = Fondo Nacional de Garantía (National Guarantee Fund).
FOGAPE = Fondo de Garantía para Pequeños Empresarios (Small Businesses Guarantee Fund).
NAFIN = Nacional Financiera (National Financing).

is, the greater the financial risk assumed by the FI and, therefore, the greater the incentive for the businesses to select creditworthy loans.

The figures clearly illustrate this relationship, since the majority of LAC funds (which have relatively low coverage rates), do not require subsidies to maintain their financial sustainability, while those in developed economies generally do. However, if the coverage rate is lower, the incentive for FIs to lend to enterprises facing the greatest credit shortage is also reduced. Therefore, policymakers should strike a balance between the goal of credit additionality (effectiveness) and financial sustainability, when setting the coverage rate and other financial parameters.

Chile's Small Businesses Guarantee Fund (Fondo de Garantía para Pequeños Empresarios, or FOGAPE) has discovered an innovative way of balancing these objectives. Instead of establishing a fixed coverage rate and a credit fee, the variables remain flexible. Guarantees are, primarily, obtained through bidding: the lower the level of coverage offered by an FI, the greater the amount of guarantees that can be obtained. This creates a market incentive to reduce the coverage rate, based on demand. Although the maximum coverage rate is 80 percent, the average rate of the portfolio will fluctuate to approximately 65 percent.

Subsequently, an additional mechanism is applied to create a market incentive toward prudent credit analysis and to promote the selection of creditworthy enterprises. This mechanism will ensure that the guarantee fees are aligned with portfolio quality. When the default rate at an FI rises above a certain ceiling, the guarantee fee for the entire portfolio will increase, in line with the deterioration in quality. These two mechanisms have contributed to the success of FOGAPE, both in terms of its high level of credit additionality and its strong and solid financial performance (see Table 4.2).

Mexico's National Financing (Nacional Financiera, or NAFIN) applies a different mechanism to ensure a high-quality credit analysis by participating FIs. In this case, the option to participate depends on certain criteria, established by NAFIN and based on a review of its credit policies and procedures. Those FIs that meet the standards have open access to guarantees. In the past, when the amount of available guarantees was limited, NAFIN used a bidding system, similar to that found in Chile.

TABLE 4.2: CREDIT ADDITIONALITY OF GUARANTEE SCHEMES

FUND	ADDITIONALITY INDIVIDUAL FIRM	SUBSIDIES	COVERAGE	TYPE OF EVALUATION
Emerging economies				
Chile (FOGAPE): Drexler, Cowan, and Yáñez (2008)	40 percent increase in average credit levels 14 percent higher probability of receiving loan	No	Fluctuates between 30 percent and 80 percent (average 77 percent in 2011)	Counterfactual
Malaysia: Honohan (2010)	35 percent increase in average credit levels		—	Counterfactual
Developed economies				
Korea: Kang, Heshmati, and Choi, (2008)	No clear relationship identified	Yes	80–100 percent	Analysis of participating firms
Japan: Iichiro, Koji, and Yamashiro (2006)	None identified beyond the first years of the programs	Yes	80–100 percent	Analysis of participating firms and of the SME credit market
United States (SBA): Brash and Gallagher (2008)	None identified	Yes	80–90 percent	Analysis of participating firms before and after receiving the guaranteed loan
United States (SBA): Craig, Jackson, and Thomson, 2007a	Positive for lower-income sector, no impact in other sectors	Yes	80–90 percent	Analysis of participating firms from lower-income areas with other participating firms

Source: Honohan (2010).

Operating Efficiency

Another advantage of credit guarantee schemes (especially relating to Tier 2 banks) is the potential to reduce operating costs by delegating credit analysis and lending decisions to the participating FIs. The vast majority of LAC guarantee programs (nearly 75 percent) adhere to this model (Pombo, Molina, and Ramírez, 2013). Furthermore, experience has shown that participating FIs tend to carry out a more exhaustive credit analysis than do public sector institutions due to greater market awareness, closer relationships with businesses, and better internal incentives to reduce losses.

Credit Additionality and Lower Financial Costs for Firms

Credit additionality that derives from guarantee programs can be measured, both in terms of the impact they have on the level of access to credit for beneficiary enterprises and in relation to change in the target sector market. Evidence from various studies indicates that programs can be successful in relation to additionality, although it should be emphasized that this conclusion is based on a limited number of rigorous evaluations. Likewise, few countries present sufficient available data.

Among emerging economies, credit additionality has been well demonstrated by the guarantee systems of Chile and Malaysia, whose financial markets remain characterized by various market failures. The evaluations that have taken place indicate that, on average, firms participating in these countries' guarantee schemes increased their access to credit by 40 percent and 35 percent, respectively, in comparison with other nonparticipating firms with similar risk profiles and characteristics. In developed economies, evaluations found no positive impact on additionality, with the exception of the Small Businesses Administration (SBA) guarantee program in the United States, which involved lower-income areas.

The positive additionality of the SBA program in lower-income areas also supports the conclusion that guarantee schemes are potentially more effective, whenever the level of market failure is greater (Craig, Jackson, and Thomson, 2007a). The businesses located in such areas tend to suffer from credit constraints, due to a lack of FIs. In effect, a common practice among U.S. banks, for example, is to draw a red line, based on geographic criteria, to demarcate lending in those zones considered to be high risk (i.e., "redlining"). This means that even potentially creditworthy clients in those zones have limited or no access to credit.

Evaluations have shown that lack of competition can also reduce guarantee scheme effectiveness. The FOGAPE evaluation revealed that the program had a positive effect only in the metropolitan area of Santiago, and no impact in other regions. Palma Arancibia (2012) and Drexler, Cowan, and Yáñez (2008) maintain that this is attributable to a lack of competition in the credit market of these other regions.

Beyond the rigorous impact evaluations, data suggest that credit guarantee schemes can be particularly effective in supporting MSMEs to continue gaining access to credit during a credit squeeze, caused by a financial crisis or other economic shocks. During these periods, FIs tend to reduce their lending to

businesses, assuming that the economic climate will have a negative influence on results. Such a credit shortage can worsen the economy's general downturn. A guarantee program could compensate the higher expected risk of banks, and have the potential to become an effective instrument of countercyclical economic policy.

The importance of credit guarantees as an instrument of countercyclical economic policy has been borne out by recent experiences in the LAC region, where the demand for guarantees increased sharply in the wake of the 2008–09 global financial crisis. During the period 2009–10, the growth rate of guaranteed loans doubled in comparison with the two previous years. The number of beneficiary firms increased by 70 percent, compared with the reduction seen in the two previous years (Table 4.3).

In both Chile and Mexico—and to a lesser extent, in Colombia—authorities have explicitly used their MSME guarantee funds as an instrument of countercyclical policy, designed to mitigate the impact of the crisis on access to credit. In Chile, the capital of the largest fund more than doubled and, in Mexico, it increased by nearly 70 percent. This allowed the programs to meet an exponential increase in credit guarantees while, at the same time, maintain prudent financial policies. During the period ranging from the end of 2008 to the end of 2010, the value of guaranteed loans in Chile increased five-fold and the number of beneficiary firms tripled. In Mexico, both the level of guaranteed loans and the number of beneficiaries doubled (Table 4.3).

In Chile, where data is available relating to the total of guaranteed credit and loans, according to the size of the firm, the impact of this type of program is apparent, particularly with regard to small enterprises. During the period 2009–10, the increase in value of the use of guarantees rose to double the total

TABLE 4.3: IMPACT OF GUARANTEE PROGRAMS DURING PERIODS OF ECONOMIC SHOCK
(AS A PERCENTAGE)

	VALUE OF GUARANTEED LOANS (PERIOD CHANGE)		BENEFICIARY FIRMS (PERIOD CHANGE)		PERCENTAGE OF LOANS TO SMALL ENTERPRISES		PERCENTAGE OF SMALL ENTERPRISES WITH CREDIT	
	2007–08	2009–10	2007–08	2009–10	2008	2010	2008	2010
Chile	8	422	–8	200	14	43	17	36
Colombia	–	35	–	60	–	–	–	–
Mexico	–	95	–	126	–	–	–	–
LAC region	50	100	–10	70	–	–	–	–

Source: Pombo, Molina, and Ramírez (2013); Palma Arancibia (2012).

loans to the small enterprise sector, so that by 2010, FOGAPE-guaranteed loans reached the equivalent of more than 40 percent of all credit granted to this kind of enterprise, compared with 17 percent during the two previous years. These results show not only the effectiveness of guarantee schemes in maintaining access to financing during periods of external shock; they also indicate that there can be significant positive impacts on the target financial sector.

With regard to the impact of guarantee programs on the interest rates charged to the firms, data from Italy and Chile point toward a reduction. In Italy, firms with guaranteed credit have financing costs that are 12 percent lower than those of similar firms with guaranteed loans (Zecchini and Ventura, 2009). In Chile, the interest rates for beneficiary firms in all segments of the MSME market are less than the open market rate (see the open window system in Table 4.4). These results suggest that the banks are charging higher rates of interest to firms without guarantees, which might indicate that many of the firms with guarantees present relatively low credit risk and may have access to credit.

The Chilean experience also demonstrates the negative impact of measures that encourage FIs to reduce interest rates for the beneficiary firms protected by guarantees. Until very recently, within the framework of the Investment Guarantee Fund (Fondo de Garantía para Inversiones, or FOGAIN), the total amount of guarantees which a bank could access was determined through a bidding process, in which banks had to compete on the basis of the interest rate offered to their beneficiaries. This led to interest rates that were much lower than the market rate. However, as may have been expected, banks made these loans available to a limited number of clients, and only to those presenting the lowest risk (see the bidding system in Table 4.4). During the period 2007–10, the interest rate differential between the FOGAIN operations and those of comparable markets fluctuated between –6.8 and 11.1 percentage points.

TABLE 4.4: THE IMPACT OF FOGAIN (CHILE) ON INTEREST RATES
(IN PERCENT)

	FOGAIN INTEREST RATES				MARKET RATES			
	MICROENTERPRISES	SMALL ENTERPRISES	MEDIUM ENTERPRISES	TOTAL	MICROENTERPRISES	SMALL ENTERPRISES	MEDIUM ENTERPRISES	AVERAGE
Open window (2011)	17.8	15	13.4	16.1	19	17	16	16.4
Bidding (2010)	10.3	10.1	10.1	10.1	N.A.	18.8	19.3	19.0

Source: Palma Arancibia (2012).

When, toward the end of 2010, the scheme was modified to make way for an open window system with unlimited access, the average interest rate for a FOGAIN-guaranteed loan increased by 6 percentage points. Following this policy shift, FIs began lending to a wider clientele, since they could now freely set prices for their guaranteed loans, according to the risk, without jeopardizing access to the guarantee fund. As a result, demand for guaranteed loans within the framework of this program increased exponentially. The number of operations rose from less than 2,000 in 2010 to 41,000 in 2011, and the amount involved surpassed US$1.8 billion, in comparison with US$192 million in 2010.

Finally, an additional factor that contributed to this enormous increase in demand was the elimination of the minimum payback period required for guaranteed loans. This modification meant that guarantee funds could be used to provide working capital loans. Consequently, the average repayment period for a FOGAIN-guaranteed loan was reduced from more than five years in 2010 to just two-and-a-half years in 2011, which indicates that a much greater number of beneficiaries participated, especially MSMEs. The number of participating MSMEs increased 24-fold in a single year, from less than 1,400 to nearly 33,000, which suggests that this segment's greatest financing needs are centered on working capital, and that guarantee schemes are an effective instrument to address them.

Economic and Social Benefits

Credit additionality and lower financing costs for businesses, which may be generated through credit guarantees are not, in themselves, measures of the benefits these schemes bring to the economy, or to society as a whole. These benefits should be calculated in relation to goals, such as national income or distributive indicators. Measuring the direct impact of guarantee programs on these objectives, however, is extremely complicated, but a wide range of business performance indicators can be examined that are easier to measure, and that can reveal the real extent of the social gains. These indicators include production, sales, employment, and profitability. Without a positive impact in these areas, a credit guarantee program could be viewed as basically a program of transfers to firms and banks.

The impact evaluations do reveal that where there is credit additionality and, therefore, a relaxing of credit constraints for firms, credit guarantees then have a positive effect on business performance. This was the case for Chile's FOGAPE program, Colombia's National Guarantee Fund (Fondo Nacional de Garantías, or FNG), and NAFIN in Mexico during the financial crisis. In Chile, it is obvious that firms participating in a guarantee program achieve higher sales and profits, on average, than similar, nonparticipating firms (Larraín and Quiroz, 2006); in Colombia, participation in the guarantee program has had a positive impact on sales and employment. Finally, in Mexico guarantee programs have helped beneficiary firms to improve labor productivity in various sectors and to maintain employment levels (UNAM, 2012). In particular, for each US$8,000 worth of guarantees conceded in 2009, one job was saved, which suggests that

TABLE 4.5: IMPACT OF GUARANTEE SCHEMES ON BUSINESS PERFORMANCE
(IN PERCENT)

	SALES	LABOR PRODUCTIVITY (PER AMOUNT OF GUARANTEE)	EMPLOYMENT	PROFITABILITY	SURVIVAL
Chile (FOGAPE): Drexler, Cowan, and Yáñez (2008)	6 (average enterprise)	—	—	4	—
Mexico (NAFIN): UNAM (2012)	—	5 (all sectors) 9 (commerce)	1 job maintained for each US$8,000 worth of guarantees	—	—
Colombia: Arráiz, Meléndez, and Stucchi (2012)	8	—	9	—	—
Republic of Korea (KOSDAQ, general fund): Kang, Heshmati, and Choi (2008)	–29 (per amount of guarantee)	–29	–1.4	—	5
Republic of Korea (KOTEC, for small, technology-intensive businesses): Kang, Heshmati, and Choi (2008)	6 (per amount of guarantee)	2	–1.4	—	27

Note: All results are statistically significant, with a confidence level of 99 percent.

the program had saved nearly 250,000 jobs. With a leverage rate of 7, this signifies that one job was maintained for each US$1,000 of fiscal contributions.

Outside of the LAC region, the Republic of Korea provides an interesting example. There, the Korean Securities Dealers Automated Quotations (KOSDAQ) program (which does not target any particular type of SME) provided access to guarantees, which actually had negative effects on business performance indicators. However, the program did help to increase the probability of survival. The evaluators explained that the program was too generous and, therefore, provided loans to weak and unprofitable firms (Kang, Heshmati, and Choi, 2008).

In contrast, Korea's Technology Credit Guarantee Fund (KOTEC), which targets small technology-intensive firms, produced results similar to those found in the LAC region. Two main factors explain this fund's superior results. First, it targeted a specific credit constraint, within a specific sector. The small technology-intensive firms lost their main source of financing when the venture capital market collapsed. The program created a substitute source of financing (bank credit), which meant that those firms with guarantees could extend their access to credit and, consequently, improve their performance. Second, the program included an evaluation of each firm's business viability, carried out by the institution responsible

for program management. The specialized knowledge, related to technology-intensive firms, seems to have increased the probability of firms with the greatest growth potential being selected.

BEST DESIGN AND MANAGEMENT PRACTICES

When making decisions regarding the design and management of guarantee schemes, it is important to consider how these schemes can influence the incentives for all actors involved, in order to increase access to credit without jeopardizing financial sustainability. There are three main actors: the FIs, the program coordinator, and the government (in particular, with regard to the contribution of fiscal resources). These banks might have diverse objectives and, therefore, it is important to determine how, and to what extent, program design and implementation will influence behavior at the beneficiary-firm level.

In an attempt to create a simplified design and implementation framework, the present study has identified six key factors that will influence a program's general components, as well as the incentives for all actors involved: (i) the financial terms of the guarantees (such as fees and coverage rates), (ii) the leverage levels, (iii) the definition of the target beneficiaries, (iv) the role of the FIs, (v) the role of the guarantee program, and (vi) the role of the government. The following section sets out recommendations for each of these factors.

Financial Terms of the Guarantees

A basic condition for defining the terms of a partial guarantee program is that the terms should be consistent with the goal of financial responsibility. In this sense, the guarantee fees should cover, at the very least, the expected payments of guarantees due to defaulted loans, which depends on the level of risk (quality) of the guaranteed loan portfolio. Moreover, the fees should cover the fund's operating costs. Although the coverage level determines the additionality, the relationship between this and the guarantee fee is what the FIs use to determine the level of risk on the loans for which guarantees are sought. Therefore, a program establishes a price per unit for coverage, according to which the FIs determine the demand for guarantees.

As the primary goal of a guarantee program should be to ease credit constraints, appropriate price levels can be defined only after identifying the coverage price at which additionality will be maximized and financial equilibrium maintained. This price will depend on the market conditions in the different segments in which guarantees are provided—for example, greater underlying risk in a market call for a higher price and vice versa; likewise, greater demand for guaranteed loans suggests that a higher rate of interest can be charged and, consequently, can reduce the risk assumed by the fund. In the LAC region,

where demand is high due to the greater prevalence of credit shortages, a high price may be set without jeopardizing the significant level of demand. However, in developed countries, lower prices are needed to stimulate demand.

There are two basic pricing options. The first consists of setting the price for a specific market segment, based on the previously mentioned process. In this way, each market segment will achieve financial sustainability. A second option, which is widely used, consists of adapting the price to encourage FIs to provide credit to high-priority segments and to reduce demand from the lower-priority ones. Financial sustainability may require a certain degree of cross-subsidization between the different segments. In most LAC countries, preferential pricing is based on the size of the business, which ties in with the idea that smaller firms are the ones that suffer from the greatest credit constraints.

Given the significant data requirements for pricing policy, and given that the basic market conditions do not often change drastically over a short period, prices can be set at fixed rates and modified only periodically. In countries where the market conditions are more variable, it will be necessary to adjust prices more frequently or, as explained below, leverage levels should be lower in order to absorb the impact, if necessary, of a rapidly deteriorating guaranteed loan portfolio.

FOGAPE offers a useful model for using market mechanisms to establish a flexible incentives framework that enables the fund to adjust prices according to demand and risk. First, the bidding process helps to adjust the market price to demand, thereby ensuring that banks offer the coverage level they are willing to provide at a determined price; those banks with the highest demand will agree to pay a higher price for greater coverage. Second, increasing the guarantee price, when the default rate goes beyond an established threshold, ensures that prices are aligned with risk, and an incentive is created for FIs to improve their lending policies.

Leverage Levels

As previously explained, the leverage and financial terms are key determinants of a guarantee scheme's effectiveness in relation to the fiscal contributions it requires. To ensure financial sustainability, the leverage level must be aligned with the value of the guarantee portfolio. In turn, calculation of the portfolio value must be forward-looking, and take into account the probability of changes in the underlying factors that influence the loan portfolio (e.g., risk) and income levels. Among the key factors required to make this calculation are (i) the performance of the economy and of the financial sector as a determining factor of the expected risk of the guarantee portfolio; (ii) the behavior of the banks on an individual level, and (iii) the flexibility of the guarantee program pricing mechanism for aligning itself with the credit risks.

The greater the potential instability of the economy and the financial sector, added to changes in bank behavior, the lower the leveraging should be, in order to preserve a cushion in case conditions

should deteriorate. A good risk assessment methodology should take this variability into account when it comes to calculating the value of the portfolio and, therefore, provide for a prudent level of reserve capital.

The creation of a more flexible price-fixing mechanism can mitigate the factors that destabilize markets and individual institutions. In Chile, for example, guarantee fees adjust themselves automatically to any deterioration in an institution's guaranteed loan portfolio. While the main reasons to implement this mechanism are to create substantial incentives for a more prudent credit selection and to ensure that FIs can monitor their lending, it also allows for an increase in fees, in line with any deterioration in the target segment, which might affect the portfolio of all the participating FIs. Greater flexibility of the pricing system allows the funds to have higher leverage levels and, therefore, enjoy greater fiscal efficiency as well (see Table 4.1 at the beginning of the chapter).

Defining the Target Beneficiaries

As previously shown, guarantee schemes should target the market segments that suffer most from credit constraints. For the programs to be more effective, it is necessary to analyze the target segment to fully understand the nature and scope of these constraints. This information should be used for the design and monitoring processes. Unfortunately, this kind of analysis is rarely conducted and, then, only on an irregular basis.

Establishing beneficiary eligibility requirements is the most direct way of targeting resources. These requirements are often limited to the type of beneficiary firm, in terms of its size or its sector. Moreover, among eligible firms, most funds provide some additional incentive in the form of more attractive prices, so that FIs will provide loans to the sectors expected to face the greatest credit shortage—also on a size or sector basis.

Although these mechanisms are relatively effective, it is necessary to take further steps to enhance program additionality, and to ensure that resources reach the firms with the most severe credit constraints. In effect, even in the most effective programs, there is room to significantly improve additionality, since many resources are allocated to firms that would enjoy considerable access to credit, in any case. Among the additional mechanisms that create greater incentives for FIs to provide loans for the most credit-constrained firms are the following:

1. Link eligibility to the firm's level of access to credit. It would be a good idea to establish an indicator that measures access to regulated FI credit by firms (as a ratio between credit/assets). The eligible firms with credit access levels above a defined threshold could either become ineligible, or the bank could pay a higher price for providing coverage.
2. Limit the number of times that a financial institution can use a guarantee for a particular enterprise. It is foreseeable that, once a firm has enjoyed access to credit from a regulated FI, it will have clearly

proven its creditworthiness and, therefore, the problem of information asymmetries faced by the institution should be reduced. This should lessen the need for a credit guarantee. To implement this kind of limit, a so-called "sunset clause" could be introduced restricting the number of times a firm can receive a credit guarantee, and/or increasing the guarantee price after a firm has received a guarantee on numerous occasions.

The Role of the FIs

As long as guarantees are only partial in nature, the FIs involved should retain responsibility for all operational aspects of the credit guarantees: the decisions to provide the credit, financial administration, monitoring and, whenever necessary, debt recovery. Financial institutions have wider experience and knowledge of these tasks and, equally important, they have strong financial incentives to carry them out effectively and efficiently. Although the scheme's operating institution might also have relevant experience and technical knowledge, the incentives to conduct effective operations are much stronger for the lending institutions. Once more, it should be mentioned that this depends on the FI assuming the financial risks of the operation.

Which institutions can participate in a guarantee program? In most countries, the primary requirement for doing so is that the institution be regulated by the national financial supervisory body, which means that, in normal circumstances, the majority of authorized lending institutions can participate. Although an open process is appropriate in the sense that it widens demand and potential program effectiveness, mechanisms should be included that can disqualify an FI if its portfolio quality is seen as significantly inferior to that of other institutions. As previously noted, the FOGAPE program charges a higher guarantee fee when an FI's guaranteed loan portfolio deteriorates, and if this deterioration gets worse, the FI can be excluded from further participation.

The Role of the Guarantee Institution

The legal and financial structure of a guarantee scheme need not affect its effectiveness or efficiency. The programs of Chile, Colombia, and Mexico, for example, have different legal and institutional structures, but they are all effective and financially sustainable.

In Chile, the two existing funds are managed by public FIs, which also offer other financial services. FOGAPE is administered by the State Bank (Banco del Estado), which is a Tier 1 public development bank (PDB) that manages the Tier 2 guarantee fund under license from the central government, which covers the fund's underlying liabilities. The Production Development Corporation (Corporación de Fomento de la Producción, or CORFO), the public sector development agency, runs FOGAIN, although its balance sheet is kept separate from the institution's loans division. In Colombia, a specialist and an independent

credit guarantee agency provide the guarantees. In Mexico, NAFIN, a development bank that operates, primarily, in Tier 2, manages the guarantee fund. The fund has no separate balance sheet, but is backed by the totality of NAFIN's assets. In all three of these countries, the government is explicitly responsible for any capital shortfall.

In the United States, the SBA is a specialist, independent institution, which provides not only guarantees, but also other services, in particular all nonfinancial services. In the Republic of Korea, the guarantee fund operators are independent guarantee agencies. In contrast to the LAC region, guarantee schemes in these countries do not face the same clear and rigid budgetary restrictions to meet the demands of financial sustainability.

Independent institutions manage the programs in Colombia, the Republic of Korea, and the United States, whereas in Chile and Mexico, the programs are in the hands of public financial institutions that provide a wide range of financial services. Likewise, it does not seem to be of critical importance whether the guarantee fund appears on the balance sheet of another institution, or whether it has a separate balance sheet. This is true as long as the incentives for financial sustainability are conserved, and there is no perception that either design or management are subject to political pressure or that the guarantee is weak.

The guarantee institution should be sufficiently flexible to modify the program's financial terms to bring them into line with market conditions. Preferably, they should do so through predefined mechanisms, such as those employed by the Chilean funds. In cases where these mechanisms are absent, it is essential to establish very clear adjustment criteria to minimize political interference, which might jeopardize either credit additionality or the program's financial sustainability.

On top of the guarantee program's operational and financial management aspects, it is important that the fund management agency monitor the program's effectiveness. Unfortunately, very few funds do this—at least from the perspective of the program's impact on access to credit. In contrast, the funds tend to focus on measuring the value of the guaranteed loans provided and the number of participating firms (in other words, the input additionality). However, such data provide little evidence regarding the programs' credit additionality (or product additionality) and, therefore, limited information about how program effectiveness might be enhanced.

The above reveals the need to pay more attention to developing information systems that enable the calculation and evaluation of the effectiveness of guarantee programs. To develop such systems, it will necessary to obtain data regarding participating firms from the FIs, which will likely require coordinated efforts with supervisory officials or credit bureaus. Moreover, periodic surveys will be necessary to compare participating and nonparticipating firms.

The Role of the Government

The central government has three key roles:

1. To establish strong budgetary limits regarding access to central government funds. Financing should be provided that allows the credit guarantee portfolio to be expanded, but not to cover losses, except in the most exceptional cases.
2. To establish clear goals and objectives.
3. To monitor guarantee fund performance and carry out periodic, rigorous impact evaluations through third parties specialists, in order to assess effectiveness and efficiency in achieving the program's goals and objectives.

CONCLUSIONS

An effective guarantee program requires, in the first instance, extensive market analysis that identifies market failures and their degree of impact. This information is necessary, both for program design and for putting into practice measures to address such failures. If the market failure were a matter of a banking institution's access to financing, especially over the long term, the most appropriate response, therefore, would be a Tier 2 financing mechanism. Guarantees can help to reduce the greater risk that results from market failures, both in terms of deficient information and in the legal and institutional framework's lack of effectiveness and efficiency in insuring financial transactions and overseeing compliance with financial contracts. It is worth highlighting that guarantees can only partially reduce (and in most cases, in a limited way) the impact of market failures; if access to credit is to be substantially improved, then integral reforms are called for.

For a program to be effective in terms of enhancing access to credit, it must maintain the incentives for FIs to use guarantees only for creditworthy clients. This implies a partial guarantee and a fee (price), in line with expected risks, thereby ensuring that the credit agency can absorb the losses in case of a default. Likewise, it is important to review the participating FI's credit history. This chapter has provided evidence that programs are most effective when they attempt to reduce the impact of external shocks that bring increased credit risk in their wake.

BIBLIOGRAPHICAL REFERENCES

Arráiz, I., M. Meléndez, and R. Stucchi. 2012. "Partial Credit Guarantees and Firm Performance: Evidence from the Colombia National Guarantee Fund." OVE Working Paper No. 02/12. Washington, DC: IDB. Available at http://www.iadb.org/en/publications/publication-detail,7101.html?id=61346.

Beck, T., A. Demirgüç-Kunt, and V. Maksimovic. 2008. "Financing Patterns around the World: Are Small Firms Different?" *Journal of Financial Economics* 89: 467–87.

Beck, T., L. Klapper, and J. C. Mendoza. 2008. "The Typology of Partial Credit Guarantee Funds around the World." Policy Research Working Paper No. 4771:1–35. Washington, DC: The World Bank.

Benavente, J. M., A. Galetovic, and R. Sanhueza. 2006. "Fogape: An Economic Analysis." Vol. 35. Santiago de Chile: Economics Department, University of Chile.

Benavides, G. and A. Huidobro. 2008. "Are Loan Guarantees Effective? The Case of Mexican Government Banks." Paper read at the conference on "Partial Credit Guarantee Schemes: Experiences and Lessons." Washington, DC: The World Bank.

Berger, A. and G. Udell. 2005. "A More Complete Conceptual Framework for Financing of Small and Medium Enterprises." Policy Research Working Paper No. 3795:1–24. Washington, DC: The World Bank.

Brash, R. and M. Gallagher. 2008. "A Performance Analysis of SBA's Loan and Investment Programs." Washington, DC: Urban Institute.

Cowling, M. and P. Mitchell. 2003. "Is the Small Firms Loan Guarantee Scheme Hazardous for Banks or Helpful to Small Business?" *Small Business Economics* 21(1): 63–71.

Craig, B., W. Jackson and J. Thomson. 2007a. "Credit Market Failure Intervention: Do Government Sponsored Small Business Credit Programs Enrich Poorer Areas?" *Small Business Economics* 30(4): 345–60.

———. 2007b. "Government Intervention in the Small-Firm Credit Market and its Effect on Economic Performance." Working Paper No. 0702:1–25. Cleveland, OH: Federal Reserve Bank of Cleveland.

Department of Jobs, Enterprise and Innovation. 2011. "Credit Guarantee Bill 2012, Regulatory Impact Analysis." Dublin: Department of Jobs, Enterprise and Innovation.

Drexler, A., K. Cowan, and A. Yáñez. 2008. "The Effect of Partial Credit Guarantees on the Credit Market for Small Businesses: The Case of FOGAPE (Small Businesses Credit Guarantee Fund of Chile)." Paper read at the conference on "Partial Credit Guarantee Schemes Experiences and Lessons." Washington DC: The World Bank.

Durán, J. C., C. García, and A. Pedraza. Undated. "Modelos técnicos del sistema de administración del riesgo de garantías del Fondo Nacional de Garantías." In: *Los sistemas de garantía de Iberoamérica: experiencias y desarrollos recientes*. Lima, Peru: Red Iberoamericana de Garantías.

Fondo Nacional de Garantías S.A. 2011. *Informe de Gestión, 2011*. Bogota, Colombia: Fondo Nacional de Garantías S.A.

Honohan, P. 2010. "Partial Credit Guarantees: Principles and Practice." *Journal of Financial Stability* 6(1): 1–9.

Iichiro, U., S. Koji, and G. Yamashiro. 2010. "Effectiveness of Credit Guarantees in the Japanese Loan Market." *Journal of the Japanese and International Economies* 24(4): 457–80.

Kang, J., A. Heshmati, and G-G. Choi. 2008. "Effect of Credit Guarantee Policy on Survival and Performance of SMEs in Republic of Korea." *Small Business Economics* 31(4): 445–62.

Kuo, C. J., C. M. Chen, and C. H. Sung. 2011. "Evaluating Guarantee Fees for Loans to Small and Medium-Sized Enterprises." *Small Business Economics* 37: 205–18.

Larraín, C. and J. Quiroz. 2006. "Estudio para el Fondo de Garantía de Pequeños Empresarios." Santiago, Chile: Banco del Estado.

Llisterri, J., A. Rojas, P. Mañueco, V. Sabater, and A. Tabuenca. 2006. *Sistemas de garantía de crédito en América Latina: orientaciones operativas*. Washington, DC: IDB.
Available at http://www.iadb.org/en/publications/publication-detail,7101.html?id=23784.

Oh, I., J. D. Lee, G. G. Choi, and A. Heshmati. 2009. "Evaluation of Credit Guarantee Policy Using Propensity Score Matching." *Small Business Economics* 33(3): 335–51.

Palma Arancibia, C. 2012. "Los principales sistemas de garantía para operaciones de crédito a empresas en Chile." Washington, DC: IDB. Unpublished.

Pombo, P., H. Molina, and J. Ramírez. 2007. "Marco de los sistemas/esquemas de garantía en Latinoamérica e Iberoamérica: conceptos y características." Santiago, Chile: Fundación ETEA para el Desarrollo y la Cooperación.

———. 2013. "Clasificación de los sistemas de garantía desde la experiencia latinoamericana." Technical Note No. IDB-TN-503. Washington, DC: IDB.
Available at http://www.iadb.org/en/publications/publication-detail,7101.html?id=66786.

Shim, I. 2006. "Corporate Credit Guarantees in Asia." *BIS Quarterly Review*: 85–8.

Stiglitz, J. and A. Weiss. 1981. "Credit Rationing in Markets with Imperfect Information." *American Economic Review* 71(3): 393–410.

UNAM (Universidad Nacional Autónoma de Mexico). 2012. "Programa de Garantías NAFIN – Secretaría de Economía. Evaluación del impacto." Mexico City: UNAM. Unpublished.

U.S. Small Business Administration. 2011. "FY 2012 Congressional Budget Justification and FY 2010 Annual Performance Report." Washington, DC: U.S. Small Business Administration.

Zecchini, S. and M. Ventura. 2009. "The Impact of Public Guarantees on Credit to SMEs." *Small Business Economics* 32(2): 191–206.

CHAPTER 5

Business Development Services and the Role of Public Development Banks

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- Business development services (BDS) are often used to improve the productivity of firms, both those that are clients of financial institutions and for those that are not. In the former case, BDS often are intended to be complementary to their financing policies.
- Recent surveys conducted of businesses and public development banks (PDBs) in Latin America and the Caribbean reveal that businesses are highly interested in BDS (demand) and that PDBs are offering these kinds of service to their clients (supply).
- Although impact evaluations are still scarce, the empirical evidence suggests that providing these services complements the provision of traditional financial services, such as credit.
- Although BDS provision is not properly a PDB activity as such, it is in the interest of PDBs to facilitate their clients' access to these services to enhance their productivity and, therefore, their repayment ability.

BUSINESS DEVELOPMENT SERVICES: A TYPE OF FINANCIAL SERVICE

Public development banks play an important role in the formulation and implementation of government policies for productive development (also known as industrial policies). As previously discussed in Chapters 1 through 4, PDBs have traditionally concentrated their role in the offer of financial services (*supply of funds*), such as long-term loans, that assist their clients in overcoming market failures that limit their access to finance. In some cases, these financial services target specific sectors. At the same time, some PDBs also offer nonfinancial business services to help improve their clients' productive capacity, which, in turn, may lead to a higher *demand* for their financial services.

There are different models for the delivery of these nonfinancial services. For example, in the public sector, ministries and development entities often promote BDS whereas, in the private sector, consulting firms, training centers, and nongovernmental organizations (NGOs) offer services. In some cases, the commercial relationship between firms (value chains) can serve to ease the transfer of knowledge. The evidence presented in this chapter, shows that PDBs often complement the supply of financial services

with nonfinancial services that aim to improve client productivity.[1] These services vary, from training (e.g., courses in basic accounting) to technical assistance (e.g., drafting business plans or identifying market niches and new clients).

This chapter examines BDS and the rationale for their provision[2], especially for small- and medium-sized enterprises (SMEs). It analyzes the characteristics of the businesses that use these types services and makes a comparison between provision by public sector and private sector banks in the Latin American and Caribbean (LAC) region. The chapter addresses the question of whether BDS improve the productivity of firms, and concludes with some observations on their importance and complementarity with other financial services.

WHAT ARE BDS AND WHAT IS THEIR ROLE?

According to existing empirical evidence for LAC economies, SMEs have more difficulty in accessing finance than larger firms, largely owing to a general lack of human capital and limited financial capacity.[3], Moreover, in many cases, SMEs operate informally, adhering only to a few of the legal and fiscal requirements for businesses. For these firms, there are few incentives to formalize. As a result of their lack of credit history and limited financial data, scarce opportunities to increase productivity through innovation and adoption of new technologies, these SMEs have lower profitability and are less creditworthy. As such, financial intermediaries do not view SMEs, in general, as good clients.

To address this situation, different BDS have been identified that can improve business productivity, as well as increase a firm's demand for financial services in the future. Herein, BDS are classified according to their main goals (i) to improve productivity for beneficiaries (internal business factors); (ii) to reduce the cost of doing business (external factors); and (iii) to generate positive externalities (see Table 5.1).[4]

[1] The Development Bank of Canada (established in 1944), for example, is a pioneering institution in the integrated use of financial and nonfinancial instruments for small- and medium-sized enterprises (SMEs). In this chapter, a distinction will be drawn between BDS and other types of nonfinancial services that are more socially based, such as low-cost medical care or the community development services offered by Banrural S.A. (Trevelli and Venero, 2007).

[2] This chapter defines a BDS as a program that aims to improve productivity, irrespective of its financial sustainability or its delivery mechanism. In the 1990s, governments, as well as multilateral and bilateral institutions, supported the introduction of BDS and funded their initial operation. They also helped maintain the financial sustainability of BDS by recommending that the beneficiaries pay for the services they receive.

[3] During 2010–11, 34 percent of SMEs surveyed by the IDB/World Bank revealed a total or partial lack of access to credit, compared to 20 percent in the case of the larger firms. The sample included only the manufacturing, services, and tourism sectors.

[4] Positive externalities result when a third party benefits from an activity of another party for which no corresponding compensation is offered.

TABLE 5.1: TYPES OF BDS AND THEIR IMPACTS ON THE PDBs

OBJECTIVE	PROBLEM	TYPE OF BDS	IMPACT ON PDB
Improve productivity	The size of the business or farm limits its economies of scale and scope. Limited access to production technologies.	Training in business-related topics (e.g., accounting, business planning, and the use of financial instruments). Supports technology transfer or innovation activities, as well as certifications.	Enhances the capacity to repay due to the client firm's greater profitability and expands the demand for its financial services (+). Decreases cost of capital by reducing provisions for unrecoverable debts (+).
Contribute to improving the business climate.	High transaction costs: a. Requirements for credit applications. b. Legal requirements for formalization. c. Procedures for payments and accounts.	Assistance in preparation of credit applications and client support. Assistance in compliance with legal requirements. Training in management and accounting. Development of online services (e.g., forms, payroll payments, and payment of taxes).	Minimizes the turnover of clients and reduces administrative costs (+).
Generate externalities	Failures in credit market or BDS for certain sectors or activities with positive externalities. Lack of coordination (value chains or clusters). Limited access to information. Development of new sectors of activity (discovery costs).	Courses aimed at specific activities and sectors. Promotion of coordination and strategic alliances. Establishment of credit bureaus and so-called "whitelists." Support for clean production technologies. Dissemination of the benefits from new activities. Promotion of market and product diversification.	Generates positive externalities or mitigates negative ones (for example, by expanding the use of so-called "green products") (+). Potential expansion of the client base (+). Complies with the institutional mandate and facilitates the procedures for access to credit (+). Greater administrative costs (–). Increase in fixed costs to enter new markets, develop new instruments, and apply new technologies (–).

Source: Authors' elaboration.
Note: "+" (positive) / "–" (negative).

Improving Productivity. The use of BDS is often justified as a policy tool to increase the productivity of beneficiary enterprises, usually SMEs. Among the services typically offered are training (through workshops and consulting) and technical assistance. To improve productivity, these services target upgrading a firm's products and inputs through: (i) interventions that reduce the cost of production (e.g., energy savings and greater efficiency by implementing the Just-in-Time [JIT] production strategy); (ii) improvements

in product quality (e.g., certification); (iii) improvements in managerial capacity and worker skills (development of human resources); and (iv) improvements in the productivity process (process innovation).

Often, when BDS address productivity issues—whether to increase productive capacity or improve the quality of the product or service—the firm's credit risk is reduced. Lower risk results from a growth in profitability and, therefore, a higher capacity to repay its loans. In this sense, for a PDB, it makes sense to an assist clients in identifying productivity improvements, as well as to offer appropriate BDS to meet these business objectives. At the same time, a client's use of a BDS is a demonstration of their willingness to remove the obstacles that may hamper growth, and thereby may signal a reduced risk of delay in loan repayment.

Dealing with an Unfavorable Business Climate. In many cases, firms face unfavorable business climates that raise their operating costs, lower productivity, and restrict access to finance. For example, owing to costly business start-up and operating expenses (company registration, taxes, customs and excise, etc.) and a cumbersome legal and institutional framework, some firms are less competitive. Some BDS can help reduce these costs and assist entrepreneurs who want to formalize their businesses by easing the process of company registration, tax payments, and compliance with other legal requirements for business. BDS can also enable firms, especially SMEs, to expand production once they operate formally. For the most part, the incentive to operate informally is greatest for smaller companies, since the costs of formalization represent a higher proportion of their sales, and they have a lower capacity to absorb such costs. On the other hand, smaller firms have few compensating incentives to formalize.

PDBs can provide services that reduce operating costs for their clients by offering certain financial services, such as electronic or mobile banking. Moreover, by promoting skills and training in digital technology for its clients (considered a type of BDS) a PBD can also reduce its operating costs.[5] Examples of these services include the online payment of taxes, fees for public services, loan charges, and online applications for lines of credit. These services can also reduce the time required to originate and execute loans.[6] Last, but not least, a BDS that promotes computer skills and training for businesses provides a foundation for the transition of firms toward a knowledge-based, 21st century economy.

Generating Externalities. Other factors that can limit the growth of firms are a lack of information regarding market opportunities, information asymmetries between suppliers and clients, an inability to

[5] For example, according to estimates by the National Bank of Costa Rica, the personal service offered to a client to make a transaction costs the institution approximately US$1.00, whereas the same transaction, carried out via electronic banking, costs only US$0.01.

[6] Reducing the cost of identifying borrowing clients and administering their loans becomes significant in the agriculture sector, given the wide distribution of the population.

benefit from positive externalities (spillovers from their own actions), and limited incentives to promote goods or services among a group of firms (so called "club goods"). Examples of this latter category include joint decision making among producers for purchasing inputs, marketing strategies, and workforce training to enhance greater operational efficiency. Through working collaborative as a cluster of firms with coordinated decision making, it is possible to increase the scale of production and investment within a particular value chain, and thus increase productivity. A key feature of these activities is that they generate externalities that can, simultaneously, benefit several firms.

In these cases, certain types of BDS can usefully generate positive externalities and overcome barriers to the flow of information. These goals are compatible with the PDB mandates that include development goals for specific sectors (e.g., agriculture sector) or particular types of interventions (e.g., a financial instrument with special characteristics), or that target beneficiaries with certain characteristics (SMEs). In general, the decision to provide a financial or nonfinancial instrument should be based at least partly on the positive externalities generated, and not only on achieving greater financial return for the PDB. For example, when entering a new market or delivering a new financial instrument, it is impossible to know ex ante what the financial result will be with any certainty. There are "discovery costs" that need to be incurred at the early stages of these activities that generate positive externalities (spillover effects). These externalities include signaling information to financial stakeholders regarding the cost–benefit of a new market (e.g., financing SMEs) or financial instrument (e.g., electronic banking). The information generated once the initial costs are borne, ex post, will assist other financial intermediaries to decide whether or not to invest in these activities.[7]

The Role of the PDB

It is obvious that the objectives pursued by different BDS do not have to be mutually exclusive. Rather, they can be complementary. For example, a BDS that seeks to generate positive externalities can improve a client's productivity, as well as the PDB's own financial return (e.g., financing energy efficiency activities will reduce carbon emissions, and allow a firm to become more competitive [profitable] which, in turn, will enhance its ability to repay its loans).

In general, BDS are designed to address both internal and external factors, as well as generate externalities that affect the performance of businesses in developing economies. Insofar as BDS are successful in helping businesses to overcome these obstacles and create appropriate incentives for certain activities

[7] When a PDB enters a sector or activity where, ex ante, the risks seem to be prohibitive and the investment return is, therefore, more uncertain, the intervention will have greater externalities. When the activity is declared profitable ex post, the question arises as to whether PDB intervention in this sector or activity continues to be appropriate. As it is referred to among seed capital and angel investors, this phase of a PDB intervention requires an "exit strategy."

(e.g. formalization), they will have a positive impact on their productivity and, therefore, on their creditworthiness.[8] For those public policies that target improving access to finance, activities contemplated in their design must address both the demand for and the supply of finance.

WHO DEMANDS AND SUPPLIES BDS?

This section is based on two separate surveys undertaken of firms and PDBs in the LAC region. The survey relating to businesses identifies the nature of the demand for BDS—irrespective of the supplier—and what has been the benefit for firms. The PDB survey defines the types of BDS offered, their justification, and how they are delivered.

Private Sector Response

A survey of LAC businesses carried out by the Inter-American Development Bank (IDB) and the World Bank between 2010 and 2011 (IDB-WB Survey, 2010–11) identifies demand features of BDS that are relevant to their evaluation by PDBs and other financial institutions.[9] From the data, it is possible to discern the relative demand for BDS by type, as well as the characteristics of the businesses that use them.

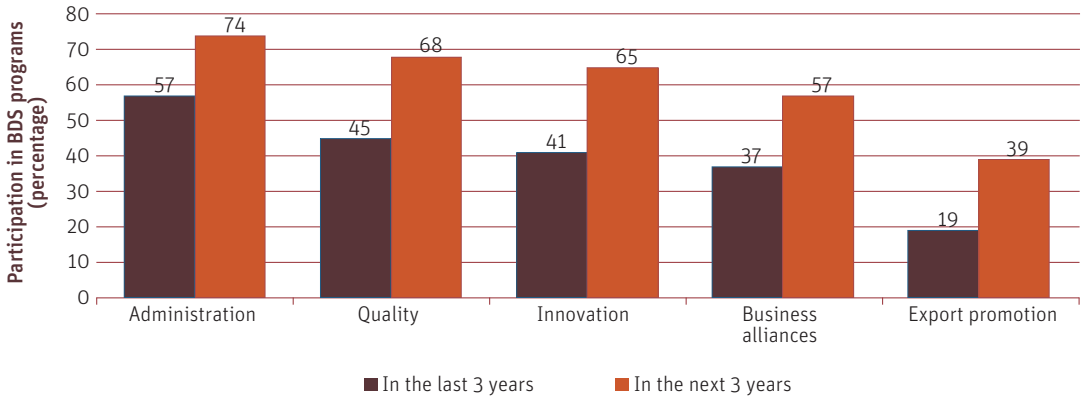
The survey results indicate that there is considerable demand for BDS in the countries surveyed, regardless of the nature of the provider—whether public or private. This is evident from the data relating to BDS demand by firms over the past three years, as well as their prospective use in the following three years. Among all the types of BDS categories, future demand exceeds past usage.

With regard to the types of BDS currently used by firms (see Figure 5.1), it is evident that there is a clear preference for those aimed at improving management (57 percent), followed by programs to improve quality (45 percent), innovation (41 percent), business alliances (37 percent), and export promotion (19 percent). The distribution of the demand for BDS reflects their nature, as well as that of the firms that contract them. For example, the low international profile of many SMEs translates into lower demand for export-promoting business services. This, however, does not imply that BDS that aim to support firms' exports—especially among smaller firms—are unnecessary, as will be further explored below.

[8] Due to restrictions on access to external finance, entrepreneurs depend, to a large extent, on the resources they generate internally (self-financing), particularly in order to finance working capital, or on informal sources of finance with much higher costs and lower levels of security. According to the survey of businesses in the LAC region, conducted in 2010–11, 62 percent of finance for working capital depended on internal funds, followed by financing from suppliers and clients. With regard to the availability of internal funds to finance investment needs, this percentage varied between 28 percent, in the case of SMEs, and 35 percent for the larger firms (IDB-World Bank, 2011).

[9] The survey was carried out in 30 LAC countries, and includes questions about the demand for BDSs among formal businesses in the manufacturing, service, and tourism sectors.

FIGURE 5.1: PARTICIPATION IN BDS BY FIRMS IN THE LAC REGION
(AS A PERCENTAGE)



Source: IDB-WB Survey (2010–11).
Note: The programs are defined in the following way: administration (technological assistance, training in information technology, administration, accounting, others); quality (quality control, obtaining quality certification); innovation (innovation support services); business alliances (services to help firms establish alliances with other suppliers and clients and facilitate technology transfer to the business); and export promotion (export promotion services).

It is worth highlighting that the role of the public sector in financing the demand for BDS is not significant. The survey reveals that it is only 10 percent of all demand categories, except in the case of export promotion, where public support represents a slightly higher percentage (14.4 percent).

Based on the survey data, a probit model was used to analyze the characteristics of the firms that use BDS, where the dependent variable is dichotomous and takes the value of 1 if the firm has used a BDS in the last three years, and 0 if not.[10] The first table (Table 5.2) reports the results without differentiating among the types of BDS, and the next (Table 5.3) breaks down the analysis according to the classification of BDS.

Based on the results of Table 5.2, it *the age of the firm* does not have a major influence on the probability that it will use a BDS. In fact, the coefficient associated with the years that the firm had been operating—although it is positive and significant in the first three categories (columns 1 through 3)—is very minimal in absolute terms (less than 2 percent). Moreover, when the results are analyzed according to the type BDS under consideration, the same result is obtained (Table 5.3).

[10] In each case, this study analyzes the marginal effects of each variable to quantify the probability of a firm seeking a BDS. This effect is estimated by applying the average value of the independent variable.

TABLE 5.2: CHARACTERISTICS OF FIRMS THAT SEEK BDS IN THE LAC REGION

DEPENDENT VARIABLE: 1 IF PARTICIPATED IN AT LEAST ONE TRAINING PROGRAM	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Years in operation (for each 10)	0.019*** (0.002)	0.020*** (0.002)	0.018*** (0.002)	0.004 (0.002)	−0.001 (0.002)	−0.000 (0.002)	−0.001 (0.002)	−0.000 (0.002)	−0.000 (0.002)	0.002 (0.002)
Services		0.057*** (0.009)	0.058*** (0.009)	0.063*** (0.009)	0.042*** (0.010)	0.056*** (0.010)	0.059*** (0.010)	0.059*** (0.010)	0.059*** (0.010)	0.063*** (0.010)
Tourism		0.084*** (0.019)	0.079*** (0.019)	0.077*** (0.018)	0.080*** (0.019)	0.087*** (0.018)	0.093*** (0.018)	0.097*** (0.017)	0.097*** (0.017)	0.096*** (0.017)
Workers (per each 100)			0.098** (0.040)	0.032 (0.021)	0.011 (0.013)	0.008 (0.011)	0.007 (0.010)	0.007 (0.011)	0.007 (0.011)	0.005 (0.010)
Medium-sized enterprise				0.165*** (0.009)	0.079*** (0.011)	0.080*** (0.011)	0.071*** (0.011)	0.070*** (0.011)	0.070*** (0.011)	0.063*** (0.011)
Large enterprise				0.251*** (0.009)	0.101*** (0.016)	0.100*** (0.016)	0.093*** (0.016)	0.090*** (0.016)	0.090*** (0.016)	0.078*** (0.016)
LN (sales)					0.051*** (0.004)	0.048*** (0.004)	0.045*** (0.004)	0.045*** (0.004)	0.044*** (0.004)	0.039*** (0.004)
Exports/sales						0.084*** (0.030)	0.088*** (0.030)	0.088*** (0.030)	0.088*** (0.030)	0.094*** (0.030)
Line of credit or loan							0.070*** (0.010)	0.048*** (0.011)	0.048*** (0.011)	0.038*** (0.011)
Applied for line of credit or loan								0.043*** (0.011)	0.040*** (0.012)	0.030*** (0.012)
Credit constraint									−0.012 (0.013)	−0.007 (0.013)
Bought a fixed asset										0.112*** (0.010)
Observations	10.395	10.393	10.162	10.162	8.742	8.410	8.385	8.350	8.326	8.319
PseudoR^2	0.072	0.076	0.087	0.154	0.161	0.165	0.171	0.174	0.174	0.188
Country dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Source: Authors' elaboration, based on data from the IDB-WB Survey (2010–11).

Note: The coefficients are the marginal effects evaluated in the means or averages of the independent variables. Standard robust errors in parenthesis.

***= p<0.01; ** = p<0.05; * = p<0.1.

[a] The firm did not apply for a loan in the previous year for reasons other than a lack of necessity (interest rate, lack of collateral, complexity of the application procedure, etc.).

The *sector of activity* of the businesses surveyed, however, affects the probability of a firm using a BDS. According to Table 5.2, firms in the tourism sector most often seek out these services, followed by firms engaged in other services (6 percent and 10 percent, respectively). When analyzing these results according to BDS type, it is obvious that firms in the services and tourism sectors have a greater probability of using services in administrative improvements, innovation, and business alliances than does a company in the manufacturing sector (Table 5.3). The only areas in which the manufacturing firms exhibit a higher incidence of use than the others are support services for exports and the use of certifications.

Firm size is another variable that affects demand for BDS in the LAC region. In general, large firms show a greater tendency to solicit BDS than medium-sized enterprises, although this difference is slight (less than 2 percentage points) (Table 5.2). However, when broken down by the five types of BDS, the likelihood of a medium- or large-sized enterprise requesting a BDS is much greater in comparison with that of small firms. These differences are indeed important: between 5 and 10 percentage points. This result is reinforced in both tables in the analysis of the coefficients related to the value of sales (in logarithms), which is positive and significant (and can be viewed as a proxy for firm size).

With regard to *export sales*, the likelihood of having used a BDS increases positively with the level of exports as a proportion of total sales (between 8 and 9 percentage points). In particular, according to the type of BDS, the higher the percentage of export sales a business made the greater the probability that the same firm used services for quality improvement (18.2 percent), strategic alliances (6.8 percent), and innovation (5.9 percent) (Table 5.3). This result suggests that international competition, a fact of life for export companies, encourages firms to improve performance in various areas. Moreover, the data confirm that companies with the highest export activities are, understandably, those that most likely would apply for export promotion training (34.4 percent).

In terms of *credit,* it is worth highlighting that the firms with loans—or that had recently applied for one—are also most likely to have used a BDS (Table 5.2). This result coincides with the previous analysis, due to the positive impact that BDS can have on business performance and, therefore, on a firm's ability to repay its loans. This probability mainly increases with regard to BDS related to alliances, innovation, and exports (Table 5.3).

It is also obvious how the demand for BDS increases among those firms that have recently acquired *fixed assets* (an increase of up to 11 percentage points). It is possible to observe this result in similar magnitude in the demand for BDS related to business administration, quality and innovation and, to a lesser degree, to strategic alliance and export promotion training.

In summary, the demand for BDS among LAC firms seems to be influenced by company size, productive activity, export activity, access to credit, and the acquisition of fixed assets. The above results are subject to several interpretations: that that enterprises with the most favorable growth opportunities are those most likely to seek BDS, or that access to BDS can enhance a firm's growth, or indeed, that demand

TABLE 5.3: DETERMINING FACTORS ON PROBABILITY OF FIRMS IN THE LAC REGION USING CERTAIN BDS

DEPENDENT VARIABLE: 1 IF PARTICIPATED IN EACH TYPE OF TRAINING PROGRAM.	ADMINISTRATION	QUALITY	INNOVATION	ALLIANCE	EXPORTS
Years in operation (for each 10)	0.001	0.004	0.003	–0.002	0.004*
	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)
Services vs. manufacturing	0.125***	–0.051***	0.114***	0.128***	–0.098***
	(0.013)	(0.014)	(0.013)	(0.013)	(0.009)
Tourism vs. manufacturing	0.129***	0.112***	0.143***	0.127***	–0.094***
	(0.030)	(0.036)	(0.035)	(0.035)	(0.017)
Medium-sized enterprise vs. small	0.074***	0.080***	0.048***	0.012	0.065***
	(0.015)	(0.016)	(0.016)	(0.015)	(0.013)
Large enterprise vs. small	0.082***	0.143***	0.078***	0.040*	0.103***
	(0.022)	(0.023)	(0.022)	(0.022)	(0.020)
LN (sales)	0.057***	0.056***	0.035***	0.036***	0.014***
	(0.005)	(0.005)	(0.004)	(0.004)	(0.003)
Exports/sales	0.021	0.182***	0.059**	0.068**	0.344***
	(0.031)	(0.032)	(0.029)	(0.028)	(0.022)
Line of credit or loan	0.049***	0.011	0.028*	0.039***	0.035***
	(0.014)	(0.015)	(0.014)	(0.014)	(0.011)
Applied for line of credit or loan	0.015	0.028*	0.048***	0.040***	0.031***
	(0.015)	(0.015)	(0.015)	(0.014)	(0.011)
Bought a fixed asset	0.137***	0.106***	0.117***	0.084***	0.042***
	(0.012)	(0.013)	(0.012)	(0.012)	(0.009)
Observations	8.309	8.312	8.295	8.302	8.295
Pseudo R^2	0.144	0.142	0.094	0.077	0.164
Country dummy	Yes	Yes	Yes	Yes	Yes

Source: Authors' elaboration, based on data from the IDB-WB Survey (2010–11).
Notes: The coefficients are the marginal effects evaluated in the means or averages of the independent variables. Standard robust errors in parenthesis.
*** = p<0.01; ** = p<0.05; * = p<0.1.

is cyclical rising with better growth and credit availability. While the analysis of these interpretations lies outside the scope of this chapter, what is apparent is that a positive relationship exists between the demand for BDS and the specific types of enterprises, and it points to characteristics that are associated with better performance and growth prospects (e.g., higher sales, larger export share, and access to credit and fixed investment).

According to the survey's results, there is a marked segmentation among the firms that seek BDS in relation to their size, specifically depending on whether they receive a subsidy or loan to cover the cost of the BDS for which they applied. As shown in Figure 5.2, in most cases, when it comes to contracting BDS, the percentage of large enterprises that receive public financing—either partial or total—is less than the percentage of small enterprises. The only exception is related to innovation services, where the percentage of large enterprises (8.8 percent) is greater than the percentage of small enterprises (6.9 percent), but slightly less than the percentage of medium-sized enterprises (9.4 percent).

In general terms, there is more partial or total financing for BDS for export promotion, quality, and innovation programs. This situation may reflect a specific strategy on behalf of public authorities, aimed to address the market failures that affect exports and quality upgrading (information, discovery costs), as well as the goal of generating positive innovation-related externalities.

What Do PDBs Say about BDS?

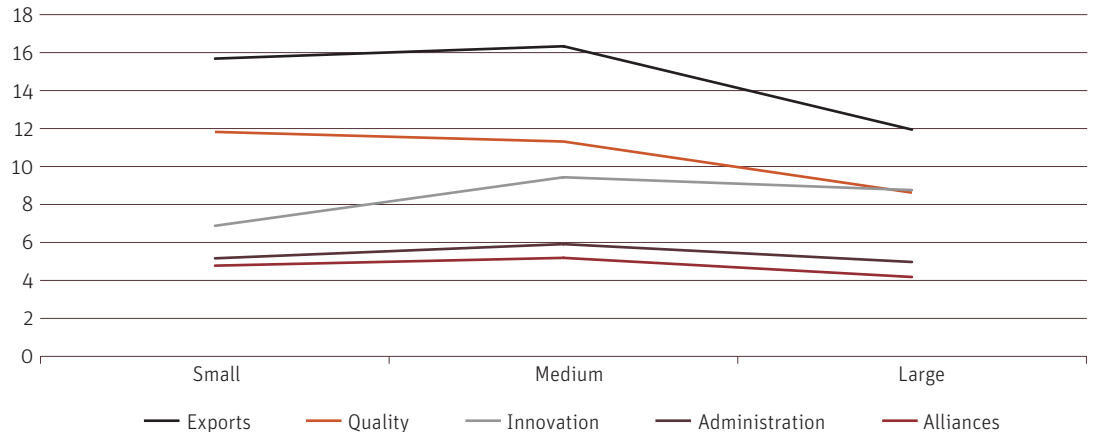
This section reviews the perspective of PDBs based on the results of the survey carried out in 2012 by the IDB and Latin American Association of Development Financing Institutions (ALIDE) (Asociación Latinoamericana de Instituciones Financieras para el Desarrollo) (hereafter referred to as IDB-ALIDE Survey).[11]

The survey's results confirm that the majority of PDBs offer some type of BDS to their clients. The data show that that nearly two-thirds offer at least one type of service according to the classification used in this study. Among the three broad types of BDS available, training is the most frequent, followed by technical assistance and online banking services (Figure 5.3). Moreover, the PDBs that provide these services usually offer more than one of the three (86 percent of cases), the most common combination being training and technical assistance (50 percent).

More than half (57 percent) of the PDBs that currently do not offer BDS indicate an interest in developing and implementing such services in the near future. The rest state that either they cannot offer these services given their legal mandates or that they simply lack the capacity to offer them.

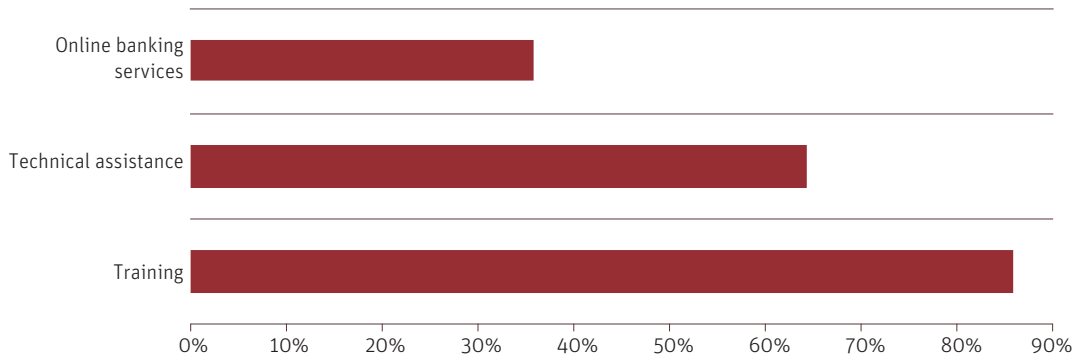
[11] The IDB-ALIDE Survey (2012) was carried out between June and July 2012, via an electronic survey tool. Invitations were sent to 70 PDBs in 19 countries in the LAC region, and responses were received from 28 institutions (40 percent) from 13 countries (68 percent). Of the responses received, 18 (64 percent) offered some type of BDS to their clients. By way of comparison, in a survey conducted by ALIDE in 2008 to investigate the provision of training and technical assistance services, 19 institutions of the 33 consulted (58 percent) responded affirmatively when asked if they offered these types of BDSs.

FIGURE 5.2: PERCENTAGE OF LAC FIRMS THAT RECEIVE PUBLIC FINANCING FOR A BDS *(ACCORDING TO FIRM SIZE)*



Source: Authors' elaboration, based on the IDB-WB Survey (2010–11).

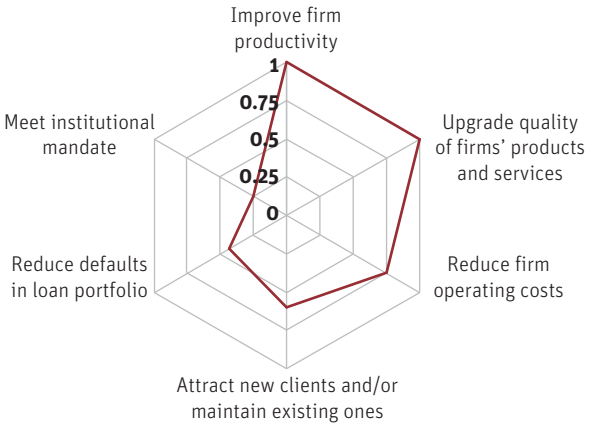
FIGURE 5.3: PERCENTAGE OF PDBS THAT PROVIDE SPECIFIC BDS



Source: IDB-ALIDE Survey (2012).

The justifications given by PDBs for providing these services are consistent with those set out in the analytical discussion at the beginning of this chapter (see Figure 5.4), the most common reasons being to improve the productivity of business clients and upgrade the quality of their products and services.

FIGURE 5.4: PDB JUSTIFICATIONS FOR PROVIDING BDS
(RANKING AVERAGE)



Source: IDB-ALIDE Survey (2012).

Reducing transaction costs was ranked third among the responses. Relatively less important, according to those surveyed, were the potential benefits that PDBs could gain from providing BDS, such as expanding their client base or reducing defaults in their portfolios. Finally, PDBs did not view provisions of BDS as part of their institutional mandate. In summary, it would appear that PDBs offer these services mainly to improve client performance, which, although it would directly enhance the firm's capacity to repay—therefore, improving the finances of the banks—the institutions did not explicitly make this connection.

By contrast, the behavior of private banks that offer BDS is based on different motivations. According to a survey conducted among 21 private banks (International Finance Corporation, 2012), the primary motivation these banks have for providing BDS to clients is to differentiate the banks from their competitors (94 percent)—by offering information (81 percent), training (76 percent), and consultancy services (19 percent). Other motivations for offering these services are to maintain clients (69 percent), expand the portfolio (50 percent), and improve the service given to clients (44 percent). Unlike the reasons given by PDBs, these results demonstrate that private banks provide these services as a tool to attract more clients, as well as to maintain existing ones. These goals are consistent with the profit-making nature of private banks. Nevertheless, most of the private banks offering these services do so for free or at a low cost.

TABLE 5.4: TYPES OF BDS SUPPLIED BY PDBS IN THE LAC REGION

PERCENTAGE OF PDBS THAT OFFER THE BDS	FROM MOST COMMON TO LEAST COMMON	TRAINING	TECHNICAL ASSISTANCE	ONLINE BANKING SERVICES
> 50%		Accounting, finances, credit pricing, and administration	Business plan development	Payment of public utilities (e.g., electricity and water)
		Use of financial services (financial literacy)	Business diagnostics	Payroll payment Payment of taxes
		Marketing and sales-based themes	Feasibility studies	Payment of suppliers
		Product, process, or management innovation		
		Environmentally-safe production		
<= 50%		Exports	Relating to procedures for obtaining licenses and registration	Payment of customs duties
		Improved productive practices	Legal advice	
		Compliance with regulatory matters	Obtaining certification (ISO 9000, HAACAP)	
		Business empowerment		
		Product and image design		
		Matters related to the use of technological business tools		

Source: Authors' elaboration, based on the IDB-ALIDE Survey (2012).

PDBs offer a wide range of these nonfinancial services. (See Table 5.4, where the relative frequencies regarding specific training, technical assistance, and online banking services are included, in descending order.) As a general characterization, it appears that the majority of training programs offered are low cost, typically cover a large number of clients, and provide training that is more generic (e.g., courses in basic accounting and finance or financial literacy). Similarly, programs targeting innovation and promoting clean technologies are relatively common, consistent with public policy objectives to enhance productivity and improve environmental outcomes (see Chapter 6). Far less common are those courses on the use of new technologies, product design, or marketing, which entail higher delivery costs since the courses would need to be tailored to specific products and markets.

Technical assistance is also characterized by topics that are more generic, with services to support the development of business plans, business diagnostics, and feasibility studies. Programs requiring more detailed knowledge, such as legal advice, certifications, or compliance with legal requirements, are less common.

By comparing the supply of BDS with the demand of the firms—previously analyzed—it is possible to see some alignment. Firms widely use management training courses, such as accounting, financial literacy, and marketing, either offered in the market or by PDBs. Yet, the demand for services related to quality upgrading and innovation is less supported by PDBs. In part, the reason may be that PDBs tend to concentrate on the larger market segments, as well as on services with lower delivery costs.

The IDB-ALIDE survey also captures how BDS are targeted to different markets and, in particular, which types of firms are targeted for training and technical assistance. As shown in Figure 5.5, the main beneficiaries of these services are SMEs. Clearly, this outcome reflects the type of mandate given to these institutions, which in many cases includes a sector focus or targets for size of beneficiary firm. Not surprisingly, many institutions share the policy goal of supporting SMEs, which make up an important market segment in developing economies.

The IDB-ALIDE Survey reveals whether the BDS provided are targeted to specific sectors, types of production, or according to status of the beneficiary as an exporter or importer (Figure 5.6). The differentiation of services by clients does not extend to the use of complementary financial services (long-term investment credits versus working capital). In fact, only 24 percent of PDBs responded that they differentiate training and technical assistance services for their clients according to whether they have long- or short-term loans. Furthermore, the PDBs report no significant difference in the characteristics of the clients that use online banking services. In other words, these latter services are accessible to all firms, irrespective of their size or sector of activity.

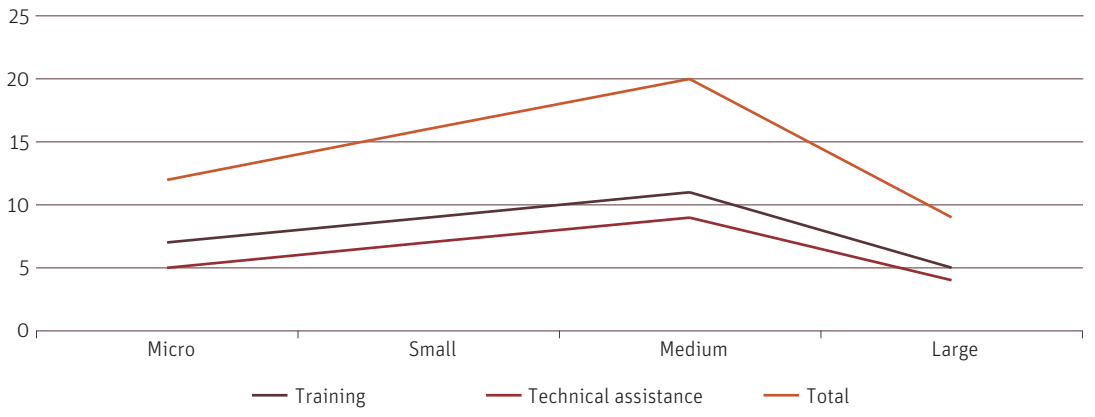
In terms of the delivery of BDS to clients, it is worth considering key operational aspects that might impact their effectiveness, such as whether: (i) firms are charged or not for these services, (ii) services are offered directly by the PDB or by a third party, (iii) services are offered in coordination with other public and private sector stakeholders, and (iv) there is a separation between the financial and nonfinancial services decision making process.[12]

First, the IDB-ALIDE Survey shows that nearly two-thirds (64 percent) of BDS offered are free for beneficiary firms, and that there are significant subsidies relating to delivery. Such features may induce

[12] There are other factors to consider as well, such as to what extent the service was tailored to the client, the market coverage, and the efficiency of service delivery, as well as the learning capacity of the client. These aspects, among others, constitute a guide for the comparative evaluation of these services and are considered in various studies of BDSs (see Chrisney and Kamiya, 2011).

FIGURE 5.5: PDB BENEFICIARIES OF TRAINING AND TECHNICAL ASSISTANCE ACCORDING TO FIRM SIZE

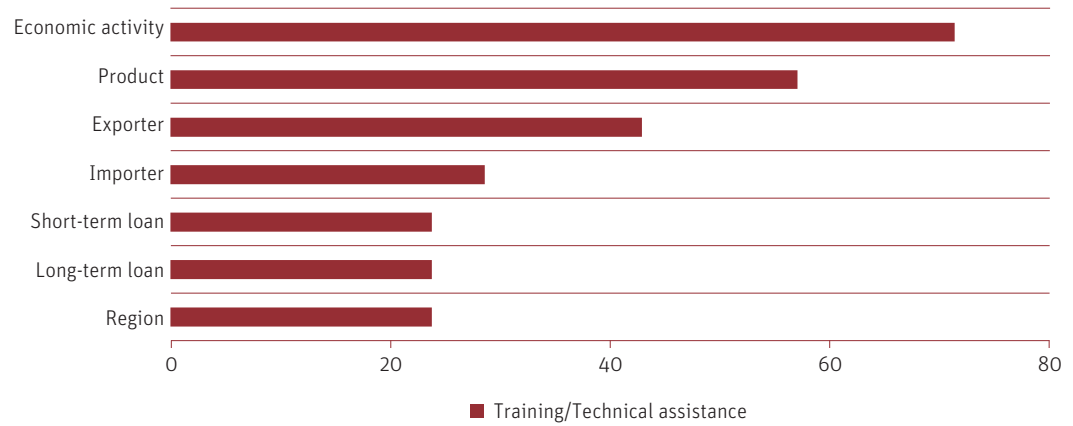
(NUMBER OF PROGRAMS)



Source: Authors' elaboration, based on the IDB-ALIDE Survey (2012).

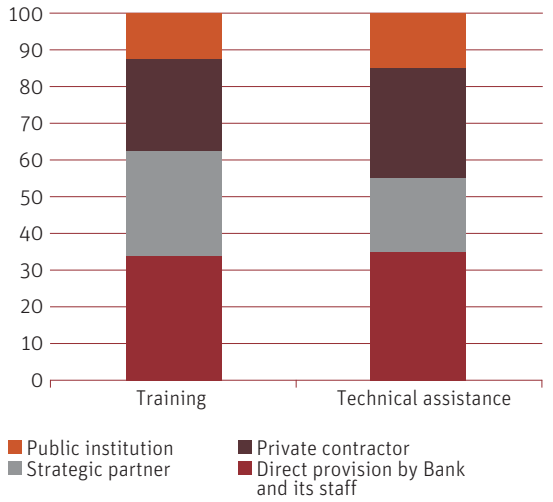
FIGURE 5.6: CHARACTERIZATION OF THE PDB BENEFICIARIES FOR TRAINING AND TECHNICAL ASSISTANCE

(AS A PERCENTAGE)



Source: Authors' elaboration, based on the IDB-ALIDE Survey (2012).

FIGURE 5.7: BDS DELIVERY MECHANISMS USED BY PDBS IN THE LAC REGION, ACCORDING TO PROVIDER
(AS A PERCENTAGE)



Source: Authors' elaboration, based on the IDB-ALIDE Survey (2012).

greater demand, regardless of whether the owner/manager of a firm is able to or is interested in improving productivity. Obviously, there are theoretical justifications for such subsidies, in terms of addressing a market failure or in generating positive externalities, as was explained in the earlier sections of this chapter. However, there are cases in which the firm that uses the BDS profits from it and, therefore, could have been charged for the service. By paying for it, the beneficiary would also signal a commitment to improve his or her firm's productivity, as well as a greater likelihood to repay. To assess this likelihood, however, more information is needed regarding the beneficiary's behavior in various credit and BDS programs, combined with data on the performance of control groups. For example, how a particular firm's productivity varies according to type of BDS would be expected to differ between two firms, such as one that registers for a basic accounting course and one that completes a certification, such as the ISO9000, for exporters.[13] In the former case, the added value to the firm's productivity would be expected to be lower, while in the latter, the firm reveals an interest in markets that require higher production standards.[14]

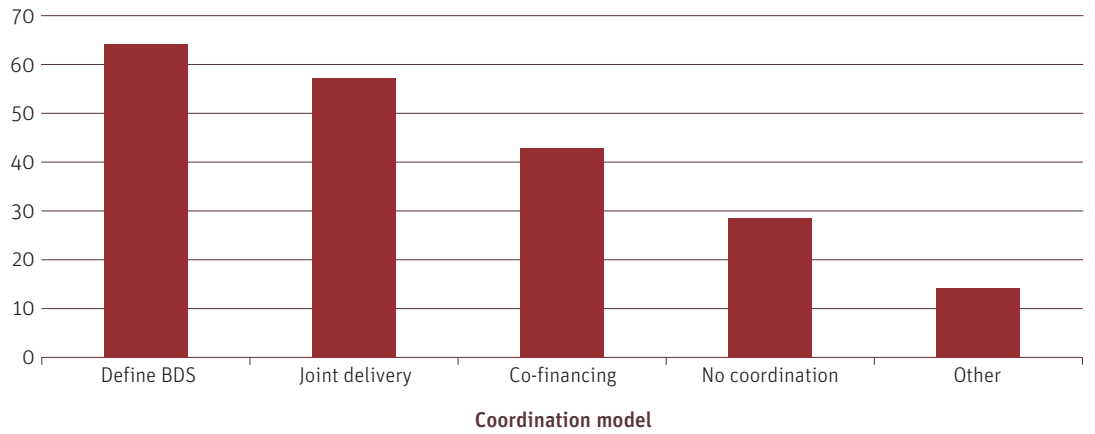
Second, the survey identifies that the most common delivery mechanism for BDS is partnerships with third parties (65 percent), either through the use of strategic partners (chambers of commerce, associations, or others) or through private or public financial intermediaries (see Figure 5.7). The role of third parties varies according to the service offered, whether training or technical assistance. The percentages of these two services provided directly by PDBs are almost equal (35 percent and 34 percent, respectively).

[13] In all cases, including instances when the client covers the total cost, it is impossible to ensure, ex ante, whether a firm will be successful or not in its future activities, given that this depends on other exogenous factors and on unobserved characteristics of the firm. To better understand these effects, it is important to carry out more rigorous impact studies.
[14] The evidence of the IDB-ALIDE Survey (2012) shows that PDBs tend to offer lower-cost BDS and ones those that generate positive externalities.

Third, inter-institutional coordination is viewed as a key element for the efficient delivery of these productivity-enhancing services (Rivas et al., 2008). Given the multiplicity of factors that influence increased productivity, the greater the complementarity among the various stakeholders involved in the delivery of the BDS, the greater the impact on the beneficiary. According to the survey, there is significant inter-institutional coordination between PDBs and other public sector stakeholders in various aspects of BDS delivery. In fact, a significant percentage of PDBs indicate that they participate in coordinated efforts to define the type of BDS to offer, the delivery mechanism to use, and the means of co-financing (Figure 5.8). Moreover, according to the survey, less than 30 percent of PDBs report a lack of intergovernmental coordination in the delivery of BDS.

Fourth, the governance and effectiveness of these programs is better served when there is a clear administrative separation between the decisions on delivery of BDS and the provision of financial services. This organizational *firewall* ensures that that costs are managed independently, thus providing greater transparency to whatever subsidy—explicit or implicit—is embedded in the BDS delivery. Furthermore, independent management means that decisions on the provision of service, as well as credit, are based on cost-effectiveness. Finally, independent management facilitates the effective monitoring and evaluation of each BDS by linking it more directly to its own administrative and capital costs. These issues are difficult to capture in a survey, and depend to a large extent on the culture of an organization;

FIGURE 5.8: DEGREE OF INTERGOVERNMENTAL COORDINATION IN THE DELIVERY OF BDS BY PDBS IN THE LAC REGION
(AS A PERCENTAGE)



Source: Authors' elaboration, based on the IDB-ALIDE Survey (2012).

therefore, the IDB-ALIDE Survey (2012) does not explicitly provide data on these elements of operational efficiency.

Lastly, the survey results indicate that the majority of services originate from specific requests from clients or trade associations (although, in some cases, they result from management recommendations of the PDBs). This raises a possible concern, since the choice of which BDS to offer is not typically based on an evaluation of client needs or diagnostics on the productivity or competitiveness levels of the beneficiary firms.

ARE PUBLIC DEVELOPMENT BANKS EFFECTIVE IN INCREASING PRODUCTIVITY?

The relationship between finance (credit easing) and productivity has been well articulated in theoretical terms where models show that greater access to credit enables investment to improve productivity in long-term projects.[15] Nonetheless, empirical results are mixed regarding the relationship between finance and productivity at the microeconomic level.[16]

Although the empirical literature is scarce, there is some evidence pointing to the complementarity between financial and nonfinancial services. Furthermore, there are potential benefits to the financial institutions, themselves, in providing BDS (International Finance Corporation, 2012). Additionally, the evidence presented herein highlights a strong correlation between credit and the use of BDS, as well as between the investment in fixed assets (which normally requires outside finance) and the use of these kinds of nonfinancial services.

At the micro level, the results are mixed. With regard to the impact that BDS have on enterprises, López Acevedo and Tan (2010), based on evidence from Chile, show that while nonfinancial service interventions have a positive impact on firm performance, there is no differential impact associated with

[15] Levine (1991) and Bencivenga, Smith, and Starr (1995) find that long-term projects that enhance productivity are easier to carry out in the presence of liquid credit markets where owners can sell their shares if they need capital before the project matures. Furthermore, King and Levine (1993) argue that financial markets can mobilize savings to finance investment projects because of their ability to evaluate entrepreneurs with potentially successful prospects. Finally, Aghion et al. (2005) show that the existence of perfect credit markets increases the potential to make longer-term investments and enhance productivity by reducing liquidity risk.

[16] For example, Gatti and Love (2008) observe that access to credit has a positive impact on total factor productivity (TFP) in Bulgaria, whereas Moreno-Badía and Slootmaekers (2008) find that financial restrictions do not reduce productivity in most sectors in Estonia, with the exception of the research and development (R&D) sector, where the negative effect of credit shortage on productivity is significantly high. According to Duvendack et al. (2011), the principal reviews of the literature on microfinance (Sebstad and Chen, 1996; Gaile and Foster, 1996; Goldberg, 2005; Odell, 2010; and Orso, 2011) conclude that rigorous quantitative evidence on the nature, magnitude, and balance of the impact of microfinance is very limited and inconclusive (Armendáriz de Aghion and Morduch, 2005; 2010).

credit programs. The authors conclude that it is unlikely that access to finance alone would prompt firms to undertake the necessary technological and organizational changes required to improve firm performance. According to Monge-González and Rodríguez-Álvarez (2012), the combination of short-term training services, such as seminars or workshops, with specific financial services does not have a significant impact on firm performance.[17] Other studies show some positive effects of combined programs (BDS and financial services), such as those applied to microenterprises and firms in rural areas, with improvements noted in profit and access to long-term credit (Rivas et al., 2010).

With regard to the impact of BDS on the financial institutions that provide them, Karlan and Valdivia (2006) show that borrowers are more likely to repay within stipulated time periods if they are offered a combined financial and nonfinancial program. These results suggest that a firm's use of BDS may be a valuable input to an analysis of its creditworthiness. In this sense, the participation in a BDS reduces the inherent asymmetry of information about those unobservable qualities of the firm asking for credit. In these cases, a PDB could increase its supply of credit and/or reduce its operating costs, while reducing repayment risk. For instance, when a firm applies for credit and it already has used a BDS, the lender can factor this into the risk analysis, increasing the firm's chance of being granted credit. This would apply if the BDS helped reduce management or production risks, improve its cash flow, or increase its sales.[18] An element yet to be evaluated is whether the entrepreneur's financial stake in the BDS reflects a deeper commitment to continue improving productivity and, therefore, whether the service has a greater effect on the firm's production.

[17] In spite of this result, in the case Costa Rica, firms that gained access to certain financial services increased sales and employment, improved their level of formalization, and were more successful in accessing credit from local financial intermediaries.
[18] This was the case of FOGAIN (El Fondo de Garantía de Inversiones) in Spain, in which the guarantee provided fluctuated between 50 and 70 percent, according to whether the entity had certifications or formed part of the value chain program (De Olloqui and Palma, 2012).

CONCLUSIONS

Notwithstanding the debate surrounding the role of PDBs in providing finance to firms and in the development of local financial markets in the LAC region, it is clear that these institutions are relevant in defining and implementing productive development policies. Empirical evidence shows that PDBs not only provide financial support to firms, but also create and deliver BDS as an important part of their private sector development policies. In this light, this section offers a few suggestions to consider in the design and implementation of BDS, as well as some recommended areas for future research.

The private sector's high usage of BDS reflects not only a high demand for these types of service in LAC countries, but also a willingness by entrepreneurs to pay for them—particularly for private provision. From the perspective of a PDB, these nonfinancial business services are an important tool to improve the productivity of its client. By contributing to improved performance, BDS also increase the firm's ability (and possibly willingness) to repay its loans. In this sense, it is in the interest of PDBs to ensure access to these services to their clients.

However, even if BDS can have substantial benefits to clients in terms of increased performance, their design and provision are clearly not part of the core function of a PDB. If a PDB were to offer both financial and nonfinancial services to its clients, potential conflicts of interest could arise related to the credit decision-making process. Moreover, PDBs, in an effort to create markets, should avoid activities that compete with already established providers or limit the entry of new, financially sustainable private sector providers.

Rather, PDBs should focus on improving the demand for BDS among clients. At the same time, they can focus on increasing the supply of BDS from specialized institutions since PDBs are well placed to understand their clients' needs and, based on that knowledge, direct them to those organizations best able to provide the appropriate services. Under these circumstances, there is a more compelling case to form strategic alliances with BDS providers than for PDBs to become stand-alone service providers.

However, PDB's should offer services that are primarily designed to lower costs for both the client and the institution providing the service (e.g., online banking). The challenge that PDBs face is to determine whether or not they should charge a fee for these types of nonfinancial services.

PDBs should also undertake impact evaluations of their programs and products to establish their effectiveness (see the methodological guidelines established in Chapter 3). Through these types of evaluations, it is possible to determine whether a program should be closed due to its ineffectiveness, or whether it should be extended when successful; which program should be selected among the various alternatives; and what the preferred delivery method should be for a specific program. In the same vein, it is essential to evaluate the impact of combined financial and nonfinancial services on beneficiaries and, if positive, by what means the impact can best be achieved. Moreover, further research on policy

initiatives that aim to enhance productivity in LAC economies should establish whether requiring payment for a BDS indicates a greater commitment by an entrepreneur to continually improve their activities and, thus, improve a firm's productivity.

Owing to the lagging productivity growth in the LAC economies compared to that of developed economies (IDB, 2010), it is essential for productive development policies to be implemented in the most effective and efficient manner possible in the region. BDS are one part of the mix of these policies, and their efficient use can contribute to productivity growth in the countries of the LAC region.

BIBLIOGRAPHICAL REFERENCES

Aghion, P., G. Angeletos, A. Banerjee, and K. Manova. 2005. "Volatility and Growth: Credit Constraints and Productivity-Enhancing Investment." NBER Working Paper No. 11349. Cambridge, MA: National Bureau of Economic Research.
Available at: http://www.nber.org/papers/w11349.pdf?new_window=1.

Armendáriz de Aghion, B. and J. Morduch. 2005. *The Economics of Microfinance*. Cambridge: MIT Press.

———. 2010. *The Economics of Microfinance* (second edition). Cambridge: MIT Press.

Báez, L. 2008. "Desarrollo rural a través de vínculos entre servicios financieros y no financieros: experiencias en Centroamérica." Documento de Sistematización No. 26. Serie de publications RUTA FASE VI. San Jose, Costa Rica: RUTA.

Bencivenga, V. R., B. D. Smith, and R. M. Starr. 1995. "Transaction Costs, Technology Choice, and Endogenous Growth." *Journal of Economic Theory* 67: 153–77.

Chrisney, M. and M. Kamiya. 2011. "Institutions and Productive Development Programs in Latin America and the Caribbean: Methodological Approach and Preliminary Results." Technical Note No. IDB-TN-305. Washington, DC: IDB.
Available at: http://www.iadb.org/en/publications/publication-detail,7101.html?id=32146.

De Olloqui, F. and C. Palma Arancibia. 2012. "Las nuevas oportunidades para la instituciones financieras de desarrollo en América Latina." Technical Note No. IDB-TN-402. Washington, DC: IDB.
Available at http://www.iadb.org/en/publications/publication-detail,7101.html?id=45726.

Duvendack, M., R. Palmer-Jones, J. G. Copestake, L. Hooper, Y. Loke, and N. Rao. 2011. "What is the Evidence of the Impact of Microfinance on the Well-Being of Poor People?" Research Report. London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London.
Available at: http://opus.bath.ac.uk.

Eslava, M., A. Maffioli, and M. Meléndez. 2012. "Second-Tier Government Banks and Firm Performance: Micro-Evidence from Colombia." Working Paper No. IDB-WP-294. Washington, DC: IDB.
Available at http://www.iadb.org/en/publications/publication-detail,7101.html?id=31446.

Gaile, G. L. and J. Foster. 1996. "Review of Methodological Approaches to the Study of the Impact of Microenterprise Credit Programs." Washington, DC: USAID.

Gatti, R. and I. Love. 2008. "Does Access to Credit Improve Productivity? Evidence from Bulgarian Firms." CEPR Working Paper No. 6676. London: Centre for Economic Policy Research.

Goldberg, N. 2005. "Measuring the Impact of Microfinance: Taking Stock of What we Know." Washington, DC: Grameen Foundation.

Guirkinger, C. and S. Boucher. 2007. "Credit Constraints and Productivity in Peruvian Agriculture." Working Paper No. 07–005. Berkeley, CA: Giannini Foundation of Agricultural Economics, University of California.

IDB (Inter-American Development Bank). 2010. *The Age of Productivity: Transforming Economies from the Bottom Up.* Development in the Americas Series. Washington DC: IDB.

IDB-World Bank. 2011. "IDB-WB Survey, 2010–11." Washington, DC: IDB-World Bank.
IDB-ALIDE (Latin American Association of Development Financing Institutions). 2012. "IDB-ALIDE Survey, 2012." Washington, DC: IDB-ALIDE.
IFC (International Finance Corporation). 2011. "SME Finance Policy Guide." Washington, DC: IFC.
———. 2012. "Why Banks in Emerging Markets are Increasingly Providing Nonfinancial Services to Small and Medium Enterprises." Washington, DC: IFC.
Karlan, D. and M. Valdivia. 2006. "Teaching Entrepreneurship: Impact of Business Training on Microfinance Clients and Institutions." Center Discussion Paper No. 941 (July). New Haven, CT: Yale University.
King, R. and R. Levine. 1993. "Finance, Entrepreneurship, and Growth." *Journal of Monetary Economics* 32: 513–42.
Levine, R. 1991. "Stock Markets, Growth, and Tax Policy." *Journal of Finance* 46(4): 1445–65.
López Acevedo, G. and H. W. Tan. 2010. "Impact Evaluation of SME Programs in Latin America and the Caribbean." Washington, DC: World Bank.
McKenzie, D. and C. Woodruff. 2006. "Do Entry Costs Provide an Empirical Basis for Poverty Traps? Evidence from Mexican Microenterprises." *Economic Development and Cultural Change* 55: 3–42.
Monge-González, R. and J. A. Rodríguez-Álvarez. 2012. "El impacto de los servicios financieros y de capacitación en las MIPYME de Costa Rica." Working Paper No. IDB-WP-365. Washington, DC: IDB. Available at http://www.iadb.org/en/publications/publication-detail,7101.html?id=63486.
Moreno-Badía, M. and V. Slootmaekers. 2008. "The Missing Link between Financial Constraints and Productivity." LICOS Discussion Paper Series. Leuven, Belgium: KU Leuven.
Odell, K. 2010. "Measuring the Impact of Microfinance: Taking Another Look." Washington, DC: Grameen Foundation.
Orso, C. E. 2011. "Microcredit and Poverty. An Overview of the Principal Statistical Methods Used to Measure the Program Net Impacts." POLIS Working Paper No. 180. Alessandria, Italy: Istituto di Politiche Pubbliche e Scelte Collettive (POLIS).
Rivas, G. et al. 2008. "Propuesta metodológica para la revisión y evaluación de arreglos institucionales y programas de apoyo al desarrollo productivo en América Latina y el Caribe." Washington, DC: IDB. Unpublished document.
———. 2010. "Apoyo integral al desarrollo empresarial: discusión conceptual y análisis de experiencias." Washington, DC: IDB. Unpublished document.
Sebstad J. and G. Chen. 1996. "Overview of Studies on the Impact of Microenterprise Credit." Washington, DC: USAID.
Storey, D. J. 1997. "Six Steps to Heaven: Evaluating the Impact of Public Policies to Support Small Businesses in Developed Economies." In: D. L. Sexton and H. Landstrom (eds.), *Handbook of Entrepreneurship*. Oxford: Blackwell.
Trevelli, C. and H. Venero. 2007. *Banca de desarrollo para el agro: experiencias en curso en América Latina*. Lima: Institute of Peruvian Studies.

CHAPTER 6

Public Development Banks and Climate Change Mitigation

José Juan Gomes Lorenzo and María Netto

- As they move into a new paradigm, today's public development banks (PDBs) can play a fundamental role in addressing new public policy challenges, such as climate change mitigation.
- The very nature of PDBs means they can help to create a favorable investment climate, provide financial instruments to mobilize the private sector, leverage both their own and international resources, and promote long-term, sector-based policies.
- Governments must be prepared to carry out specific actions to support PDBs in these functions.

CLIMATE CHANGE: A NEW CHALLENGE FOR PDBs

As highlighted in Chapter 1, PDBs have gained greater financial stability over the last 10 years, which enables them to focus on the new challenges and opportunities that have arisen since the expansion of their mandate. This chapter will address one of the most important of these new challenges: supporting climate change mitigation.

It is now recognized, worldwide, that if climate change is to be addressed, fundamental changes to global development models are required, in order to move toward less carbon-intensive practices, which are more resilient to the adverse impacts of climate change (IPCC, 2007). Calculations show that the cost of adapting new infrastructure investment projects by 2030 to challenge the expected effects of climate change will total between US$140 billion and US$175 billion a year (World Bank, 2010). The Latin American and Caribbean (LAC) region, alone, will require investments in climate change mitigation of between US$40 million and US$80 billion a year, and between US$18 billion and US$21 billion for climate change adaptation (AGF, 2010). In the period 2003–10, however, total investment in climate change mitigation and adaptation reached only US$7.5 billion and US$60 billion, respectively (Buchner et al., 2011).

Cognizant with these needs, governments agreed under the Climate Change Convention negotiations to leverage up to US$100 billion a year between 2012 and 2020 for activities that address climate change (UNFCCC, 2010), and launched a global Green Climate Fund (UNFCCC, 2011). However, these international public resources, alone, will be insufficient for a low-carbon development strategy, and the fiscal

austerity measures now taking place in many developed countries makes further contributions unrealistic. Given that the private sector is the major source of investment to address climate change (86 percent of total investments) (UNFCCC, 2007), there is a general consensus that mobilizing private capital will be essential, if significant, transformational, and long-term impact is to be achieved in developing economies. In effect, governments are working—at different levels—to develop concise and adequate regulatory frameworks that will provide appropriate prices and incentives to encourage the private sector to carry out long-term investment in new technologies.

From a theoretical perspective, greenhouse gas (GHGs) emissions, which are responsible for global climate change, can be viewed as a negative externality, or as the result of the unconstrained use of shared or collective resources. The environment is a shared resource, which can be contaminated by both people and industry. Global pollution creates a "public bad" borne by all—a negative externality with a wide impact. Without regulatory intervention, it is often difficult to specify a "price" to GHG emissions that is internalized by the economic activity of individuals and firms. Moreover, as a fundamental externality that will affect generations to come, the right price will depend, to a large extent, on how their future wellbeing will be valued in relation to the current generation (IMF, 2008). In practice, even when public resources are available, with lack of comprehensive regulatory signals for the market, the private sector often lacks sufficient information and/or incentives to shift their long-term investments toward more environmentally sustainable paths.

This chapter will analyze how PDBs are able to scale up long-term private sector investments in climate change mitigation activities through the mobilization and intermediation of public resources (national and international) and the creation of an enabling environment for low-carbon investments. Although scant attention has been given to PDBs until recently, it is now recognized that they are in a unique position to catalyze private investment for projects related to climate change mitigation.[1]

Given their long history and experience in the LAC region, PDBs are able to understand—better than many local public and private stakeholders—what is required to encourage long-term investment. As public institutions, they are considered to be credible. Their many characteristics, discussed in Chapters 1 to 5 (e.g., substantial experience in financing investment projects and programs, knowledge of the

[1] This growing recognition was confirmed by the creation of the International Development Finance Club (IDFC), a new network of renowned subnational and national development banks with total assets of more than US$2.1 billon and commitments to green financing totaling approximately US$89 million in 2011 (Hohne et al., 2012). The members of the club selected climate change mitigation financing as the central focus of their work agenda for 2012 (for more information, see: http://www.idfc.org). Moreover, toward the end of 2011, the World Federation of Development Financing Institutions (WFDFI) issued the Karlsruhe Declaration, as well as a combination of declarations at Rio+20, stating that this agency "will continue to use, through its member institutions, their finance and investment resources and skills as levers to promote and pursue sustainable finances policies, practices and programs to alleviate the effects of climate change and other environmental and social problems besetting the world today." For more information, see: http://www.wfdfi.net.

use and impact of diverse financial and nonfinancial instruments, and considerable understanding of specific sectors and local circumstances), show that they have the capacity and competence to support climate change mitigation projects and programs.

This chapter will assess the different ways in which PDBs can tackle the relevant challenges to create an environment that will significantly increase investment for climate change mitigation. The following section will explore the capacity of these institutions to create the appropriate investment climate for relevant projects and programs. An analysis will subsequently be made of the various financial instruments that PDBs can provide to mobilize private sector investment. A further section will discuss their ability to leverage international financial resources, as well as to combine them with other sources of financing. Their involvement in promoting long-term sector-based programs also will be described. Finally, the areas that need additional capacity and institutional support, as well as those that should be further addressed when analyzing and supporting PDBs, will be identified, so as to perform a more proactive role in climate change mitigation financing.

CREATING A FAVORABLE INVESTMENT CLIMATE

Most climate change mitigation investment projects face market information and coordination failures, confirming that there are externalities that—as this publication examines in its introduction—justify PDB intervention. In effect, in the industrial, commercial, service, and rural and agriculture sectors, the projects rely on the adoption of new technologies and production processes whose risks, limitations, and returns are still unknown and/or not understood by the relevant public and private sector stakeholders who implement them (Brown and Jacobs, 2011).

By working with potential investors in key sectors, as well as with those responsible for the design and execution of public policy, specialized technical service providers, and local financial intermediaries, PDBs are well placed to overcome the serious information and coordination inadequacies that currently hamper climate change mitigation investment in many LAC countries. Apart from inducing, collecting, and disseminating knowledge, and coordinating the efforts of relevant public and private sector actors to structure the demand for and supply of investment financing for climate change mitigation projects and programs, PDBs can structure pilot programs to finance the adoption of new, low-carbon technologies, exerting a very powerful demonstration effect in their respective local credit markets.

By reducing the high-risk perception that financial intermediaries have and demonstrating the benefits of investment in climate change mitigation programs, it is likely that investor interest will increase. Furthermore, as the real risks and private returns of these projects become clear to local financial intermediaries, their appetite to finance this type of projects will increase leading to additional investments with declining support from PDBs.

Aside from information and coordination failures, other market inadequacies may also affect mitigation project financing; PDBs are able to address these with the financial and nonfinancial support of their respective governments and/or from international donors. Table 6.1 offers a list of barriers, at both the sector and project levels, with possible solutions, based on previous experience. With the appropriate technical support in relation to climate change and the design of GHG emission reduction

TABLE 6.1: BARRIERS TO INVESTMENT IN CLIMATE CHANGE MITIGATION AND POSSIBLE SOLUTIONS

	OBSTACLE	POSSIBLE SOLUTION
Environmental challenges	Lack of awareness of the opportunities regarding climate change mitigation and its economic benefits.	Launch campaigns to build capacity and to raise awareness among program developers and local financial institutions (LFI), based on key success stories.
	Lack of coordination among the principal actors.	Bring together policymakers, LFIs, and project developers to generate collective action and synchronize objectives and interests.
	Lack of awareness about the significant actors in the market, among them the LFIs, and providers of technology and specialized technical services.	Certify technology and specialist technical assistance providers, and make them known to LFIs and project developers.
Challenges facing the projects	The cost of feasibility studies and project preparation is prohibitive.	Create support and incentives so that project developers can take advantage of opportunities.
	Lack of knowledge about sectors and technologies.	The LFI may need to co-finance the project with another local or foreign lender with previous experience in the sector or the technology.
	Counterparty risk is too high, or there are insufficient guarantees.	The LFI may possibly require a third-party guarantee.
	The project lacks sufficient capital.	Project developers need additional capital to strengthen the project's balance sheet.
	The volume of operations is too small, or the transaction costs too high, in relation to the returns for LFIs.	The LFI may have to bundle a package of project proposals to achieve economies of scale.
	The LFI lacks long-term liquidity.	The LFI may need access to long-term financing (in local or foreign currency) in order to fulfill project requirements.
	The volume of operations is too high for LFI balance sheets.	The LFI may have to syndicate its transactions.
	The LFI may have reached either the sector or the borrower credit risk limit.	The LFI may have to transfer the risk to a third party to remain within prudent borrower or sector limits.
	The Kyoto Protocol's Clean Development Mechanism (CDM) is not adequately understood, and its management is not straightforward.	Perhaps the project developer needs guidance and financial support to establish his/her project within the CDM.
	The LFIs and the developers are unaware as to how to establish an effective monitoring, reporting, and evaluation (MRE) system for the reduction of GHG emissions.	Project developers and LFIs may need guidance and financial support to create an adequate MRE system, or financial incentives through performance-based financing.

Source: Smallridge, Gomes Lorenzo, and Rattinger (2011).

programs, these institutions could become the key drivers in promoting national climate change mitigation programs.

PRIVATE SECTOR INVOLVEMENT

It is increasingly recognized that while public finance is available on a large scale, private investment will continue to be key to investing in the infrastructure that is necessary for mitigation (Buchner et al., 2011). It is also widely accepted that there is a lack of capital (both debt and equity) available at a cost that is low enough to promote necessary investments in climate change mitigation (Ward, 2010). Moreover, the private sector often views low-carbon emitting projects to be of high risk, especially in developing countries, which may increase cost of financing to exorbitantly high levels (Brown and Jacobs, 2011).

Public financing by PDBs can be used to leverage private sector investment. In particular, it could reduce the incremental costs associated with implementing low-carbon policies in the following ways:

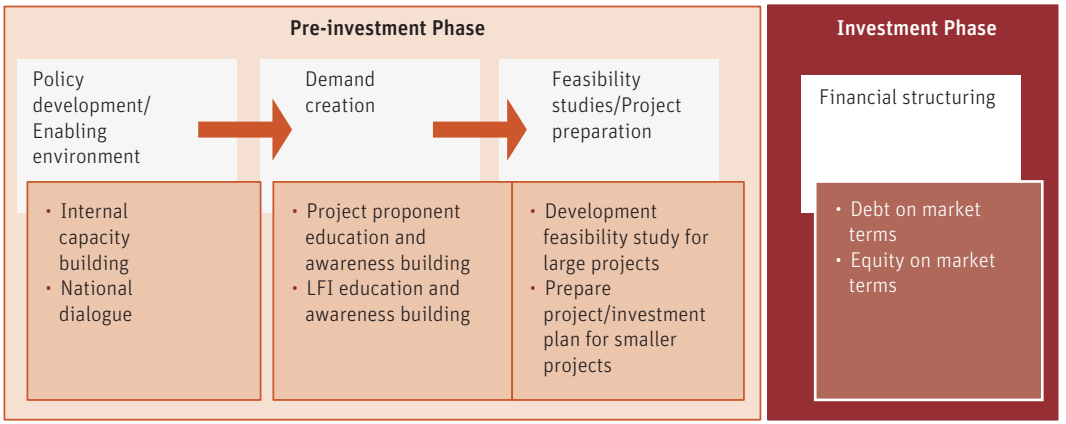
1. By increasing the "demand" side for investments and finance in climate friendly projects; addressing sector- and country-specific constraints; promoting an appropriate and stable enabling environment for investment; building awareness and capacity to analyze and structure climate related interventions; and bringing projects and companies to a state of investment-readiness, all of which will ultimately results in measurable environment benefits.
2. By mobilizing the supply of climate friendly investments from the private sector; offering financial instruments at adequate terms and conditions for this type of projects; and by supporting private investors and local financial institutions (LFIs) in understanding and tackling the specific investment and financial barriers that prevent private actors to engage in green and climate resilient projects.

In short, PDBs have the mandate, capacity, and tools to stimulate demand and catalyze the supply of finance for climate change mitigation projects. By working with the two facets of financing (supply and demand), they can play a fundamental role in promoting greater investment in the sector.

Figure 6.1 illustrates the financial requirements relating to the investment preparation and implementation stages of a mitigation project. In terms of the preparation phase, the focus is on creating a favorable environment for business and investment—to not only prepare the way for climate change investment, but also to motivate, prepare, and educate project developers. During the investment stage, the focus is on addressing capital needs (both debt and equity).

With regard to the investment preparation phase, PDBs perform a crucial role in stimulating demand for financial services by addressing the nonfinancial gaps with certain products (see Chapter 5 for

FIGURE 6.1: FINANCING NEEDS AT EACH STAGE OF A MITIGATION PROJECT


Pre-investment Phase
Policy development/ Enabling environment
Demand creation
Feasibility studies/Project preparation
• Internal capacity building
• National dialogue
• Project proponent education and awareness building
• LFI education and awareness building
• Development feasibility study for large projects
• Prepare project/investment plan for smaller projects
Investment Phase
Financial structuring
• Debt on market terms
• Equity on market terms

Source: Authors' elaboration, in collaboration with Diana Smallridge and Barbara Buchner.

full description), such as training and technical assistance for potential investors, project developers, and technology and service providers. PDBs can also liaise with developers to structure projects that are not only viable, but that will promote accountability in terms of reducing GHG emissions.

PDBs can, in particular, stimulate demand through education, technical assistance, and awareness raising. For example, it is possible to offer subsidies or grants for capacity building through technical assistance. These can also be used to stimulate business and project demand, gain expertise in preparing and evaluating projects that abate climate change, and carry out feasibility and environmental impact studies, as well as structure business plans.

On the supply side, PDBs have the potential, during the investment phase, to provide financial products that will facilitate the participation of LFIs in climate change mitigation projects and programs, including for such areas as risk transfer and subsidized financing, as well as other financial services. Over time, as LFIs become more aware and can better understand the risks, challenges, and actual returns, private sector participation and investment will increase.

During the investment phase, there are two elements to the capital structure: debt and equity. With regard to the debt, an LFI could lack the capacity to provide long-term project loans, in which case the PDB could offer a Tier 2 loan. Based on a project's expected cash flow, a loan could be offered at the market rate or on concessionary terms. Equity is generally more appropriate for projects relating to climate change, since the rate subsidy is more relevant in the presence of positive externalities. In other cases, the project or firm may require a direct—or Tier 1—loan, which is provided through commercial co-financing under what is known as the principle of "pari passu" or on more generous terms, such as longer payback periods

or lower interest rates, in order to improve the debt repayment portfolio of the commercial bank. As mentioned in Chapter 4, PDBs also guarantee that will directly underwrite the risks that the private sector is not willing—or is unable—to assume, leaving the debt management of the loan in the hands of the private financial institution. Likewise, with regard to equity, PDBs can contribute to a project's capital structure by providing additional finance under similar, or more favorable, terms compared to commercial financial institutions, either directly or through venture capital funds to which they have contributed. Table 6.2 describes the financial and nonfinancial instruments that PDBs use in the pre-investment and investment stages.

It is important to highlight that PDBs in LAC countries are in an exceptional position, since they can leverage their own resources to stimulate private equity for climate change mitigation projects, are aware of investment project opportunities in their local credit markets, and have a solid capital base. According

TABLE 6.2: PDB INSTRUMENTS TO SUPPORT THE EXPANSION OF PRIVATE FINANCING

PHASE	CLIMATE CHANGE FINANCE NEEDS	CLIMATE CHANGE FINANCE ACTIVITIES	PDB INSTRUMENTS
Investment preparation phase	Technical assistance.	Development of policies and capacity building	Donation
	Technical assistance.	Stimulation of demand.	Donation
	Financial contributions.	Feasibility studies / project preparation	Partial donation of returnable contribution
Investment phase	LFIs need long-term financing.	Debt	Tier 2 loans under market conditions
	LFIs need long-term financing and the projects require subsidized interest rates.		Tier 2 loans under concessionary terms
	The projects require additional capital.		Tier 1 loans under market conditions
	The projects require additional subsidized capital.		Tier 1 loans / interest under concessionary terms
	The project requires an abundant cash flow during its early stages.		Tier 1 loans with longer payback and grace periods.
	The LFIs need to share the risks.		Guarantees
	The projects require additional financing.		Mezzanine debt
	The projects require additional capital.	Capital	Capital under market conditions
	The project requires an injection of capital to attract additional capital.		"First loss" capital

Source: Authors' elaboration, in collaboration with Diana Smallridge and Barbara Buchner.

to information from the Latin American Association of Development Financing Institutions (ALIDE, 2011), on an aggregate basis, at the end of 2011, the PDBs in the LAC region had outstanding assets of nearly US41 trillion and a capital base of U$100 billion, collectively more than three times that of the World Bank Group. Their strong capital base, coupled with their knowledge of local project opportunities, places them in a strong position to leverage private capital in their domestic credit markets with their own resources.

There is already a worldwide shift toward green finance and, according to a recent study (Höhne et al., 2012), a select number of PDBs around the world provided approximately US$89 billion of green finance in 2011, with the largest portion (83 percent) specifically aimed at sustainable energy and climate change mitigation. Although the PDBs in each country of the LAC region may have different mandates and are at varied stages of development in terms of environmental finance, many of them already have the financial instruments in place to increase the supply of, and the demand for, private finance for these projects. Table 6.3 illustrates the results of a survey carried out by the Inter-American Development Bank (IDB) in April 2012, which includes the diverse financial vehicles that PDBs have in the region to promote the financing of programs related to climate change mitigation.

MOBILIZATION OF FINANCIAL RESOURCES

Apart from being able to leverage private sector investments with their own resources, PDBs have access to long-term sources of international finance as well as to nonreimbursable resources for development purposes. In a number of countries, PDBs are the main financial players, with access not only to long-term hard currency loans at relatively favorable rates and conditions for the financing of long-term investment projects, but also to grants and nonreimbursable technical assistance resources. In effect, multilateral development banks, financial development institutions, and export credit agencies often rely on PDBs as financial intermediaries for long-term hard loans, as well as for the allocation of grants for development. In addition, PDBs can combine resources, under market conditions, with concessional funding from bilateral and multilateral institutions.

As discussed previously herein, governments agreed under the Climate Change Convention process to leverage climate finance for up to US$100 billion a year between 2012 and 2020, and have launched a global Green Climate Fund (UNFCCC, 2011). In addition, there is an array of international bilateral and multilateral funds providing climate finance to the LAC region,[2] the most important of which include the

[2] See the following link for a database of available international climate finance: http://www.climatefundsupdate.org/regions/latin-america

TABLE 6.3: INSTRUMENTS OFFERED BY SELECTED PDBS IN THE LAC REGION

PDB	SUBSIDIES/ TECHNICAL ASSISTANCE	TIER 1 LOANS (DIRECT)					CAPITAL				CO-FINANCING WITH OTHER FUNDS
		TIER 2 LOANS (VIA LFI)	LOANS FOR INVESTMENTS/ LONG-TERM	WORKING CAPITAL CREDIT/SHORT-TERM	OTHERS	GUARANTEES	OTHER CONTINGENT FACILITIES	DIRECT CAPITAL	CAPITAL IN FUNDS	FUND MANAGEMENT	
AFD	X	X	✓	✓	✓	X	X	X	X	✓	X
BANCO DEL ESTADO	✓	✓	✓	X	X	X	X	X	X	✓	✓
BANCÓLDEX	X	✓	X	X	X	✓	X	X	✓	X	X
BANDESAL	✓	✓	*	*	*	✓	X	X	X	✓	X
BNDES	X	✓	✓	✓	✓	X	X	✓	✓	✓	X
COFIDE	✓	✓	X	X	X	X	✓	X	X	✓	X
FINRURAL	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
FINDETER	✓	X	✓	✓	✓	X	X	X	✓	✓	X
FIRA	✓	✓	X	X	X	✓	✓	X	X	✓	✓

Source: Direct reports from PDBs in response to an IDB survey, April 2012.
Notes: From 2012, due to the Law on the Financial System for Development (Ley del Sistema Financiero para el Desarrollo), the El Salvador Development Bank (Banco de Desarrollo de El Salvador, or BANDESAL) can provide direct, or Tier 1, loans. As of May 2012 the institution has yet to make a loan of this kind. The bank has also recently created a line of credit for projects connected to renewable energy that provides direct or Tier 1 loans.

Global Environment Facility Trust Fund (GEF), the Climate Investment Funds (CIF)[3], and the International Climate Initiative (ICI)—a bilateral mechanism funded by the government of Germany.

Even though international public climate finance represents a relatively small amount of the financing needed to address climate change investments, these resources have a high potential for leveraging other sources of financing. Moreover, they can cover risks that traditional sources of financing would not cover, because most of these resources are provided in the form of grants or under highly concessional conditions (UNFCCC, 2007).

[3] Eligible LAC countries (Bolivia, Brazil, Chile, Colombia, Dominica, Grenada, Haiti, Honduras, Jamaica, Mexico, Saint Lucia, and Saint Vincent and the Grenadines) are expected to receive a total of U$705 million from the CIFs. For future years, the CIFs are thus expected to become a major financing source for the LAC region. For more information, see: http://www.climateinvestmentfunds.org.

In spite of their leveraging potential, international climate finance resources on the ground can be complex to implement. Although US$930 million in funding was approved for climate change mitigation in the LAC region between 2004 and October 2011, only US$333 million was actually paid (Caravani et al., 2011). This trend suggests important bottlenecks in the implementation of international climate funds. A further analysis of the effectiveness of leverage by the Advisory Group on Climate Change Financing (AGF, 2010)[4] implies that, while international financing, in some cases, has definitely stimulated private sector investment, it has often occurred on a project-by-project basis, suggesting that there is a need for a more programmatic or sector-based approach to achieve the required scale.

PDBs offer an opportunity to overcome certain barriers that hamper the use of international funds for climate change mitigation. As previously mentioned, their knowledge, capacity, financial instruments, and networks place them in the unique position to act as intermediaries and stimulate private sector investment, especially relating to specific sectors and local circumstances. Furthermore, the knowledge they have of these sectors and conditions allows them to provide technical assistance for the design and structure of programs and projects. By increasing their technical capacity, PDBs can stimulate investment for sector-based programs to reduce GHG emissions.

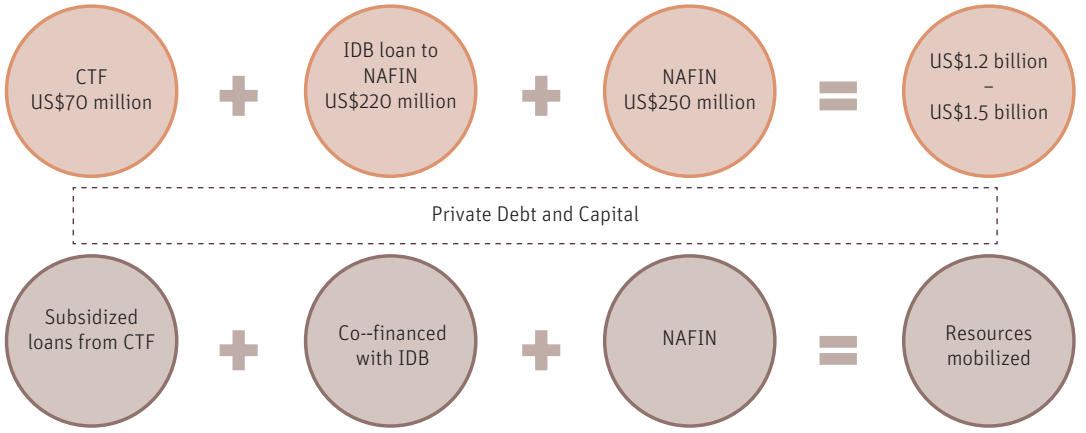
By combining their own resources with international funding and other local or international development resources, PDBs could attract essential private investment by leveraging. As Figure 6.2 clearly shows, with financial and nonfinancial support from the Clean Technology Fund (CTF) and technical assistance from the IDB, Mexico's National Financing Corporation (Nacional Financiera, or NAFIN)[5] was able to launch a Renewable Energy Financing Facility (REFF), which provides direct, long-term loans (between 10 and 15 years) at a fixed rate for developers who finance the implementation of new renewable energy projects. REFF can also provide support for the operational financing requirements of beneficiary projects through contingent credit lines that address the temporary shortage of cash flow throughout the project's lifetime (e.g., due to weak power generation or because prices are lower than expected), including the amount needed to pay the principal.[6] It is expected that US$70 million in CTF preferential loans will be leveraged to mobilize US$220 million. The IDB will co-finance these loans, through an existing line of credit, and NAFIN will provide US$250 million of its own funds. Furthermore, REFF is expected

[4] This is one of the most important among the various existing global evaluations. It includes an analysis and recommendations for AGF policymakers, a group of experts entrusted by the General Secretary of the United Nations to develop practical proposals about how to significantly boost financing for climate change mitigation measures in developing countries.

[5] NAFIN is a Mexican PDB with a mandate to encourage access to finance for small- and medium-sized enterprises (SMEs) to promote strategic and sustainable projects for the country, to encourage the development of capital markets, and to support the national government as a financial agent for subregional growth and employment.

[6] The terms and conditions for the final borrower will depend on the project's characteristics, the internal rate of return (IRR), and its risk profile.

FIGURE 6.2: LEVERAGE IN THE CASE OF REEF-CTF AND NAFIN



Source: Authors' elaboration, in collaboration with Diana Smallridge and Barbara Buchner.

to provide between US$1.2 and US$1.5 billion of private investment, representing a 30/70 debt/capital ratio (IDB, 2011a; 2011b).

PROMOTION OF LONG-TERM, SECTOR-BASED PROGRAMS

As indicated in the previous section, the AGF (2010) study demonstrates that, in order to reach the scale of investment required for climate change mitigation, the project-by-project financing approach needs to be replaced by a more programmatic or sector-based approach. While there has been progress in this direction, the following challenges still remain (Climate Focus, 2010):

1. Programmatic or sector-based approaches require backing from government policies and an enabling environment, so that project developers and investors can participate.
2. Programmatic or sector-based approaches require coordination among the different stakeholders (government, project developers, and investors), where significant transaction and coordination costs may occur to ensure proper program design and adequate monitoring and evaluation—costs that stakeholders are often unable to meet.

3. The need to demonstrate the environmental benefits (reduced GHG emissions, in the case of mitigation projects) of projects requires specific methodologies and monitoring and evaluation systems. Although bundling individual projects into packages and adopting common standards may reduce the cost of each project, project developers often worry that an evaluation of the project's overall impact, as well as the application of appropriate methodologies, come at a cost/risk.

As Boxes 6.1 to 6.3 show, PDBs could play a key role in supporting the programmatic approach. First, their respective governments could mandate the provision of long-term finance to key sectors for economic development, especially those sectors that lack private investment Second, they could aggregate small-scale projects on a portfolio-based approach, thus simplifying the application process and credit risk assessment, while minimizing transaction costs. This will encourage LFIs to participate. Finally, PDBs could develop products, such as business incubators and innovative financial and catalytic instruments, to demonstrate to the private sector the potential profitability of the sectors they are targeting.

Box 6.1: A Practical Approach to the Carbon-Trading Market

Mexico's Rural Financing Corporation (Financiera Rural, or FINRURAL), in cooperation with a group of livestock farmers and the Ministry of the Environment (Ministerio del Medio Ambiente) has drafted a program of activities, aimed at encouraging the adoption of small-scale animal waste management systems. The program envisages 254 anaerobic digesters to produce biogas (30 of these are financed by Trust Funds for Rural Development (FIRA) (Fideicomisos Instituidos en Relación con la Agricultura), of which 46 have applied to be registered under the Kyoto Protocol's Clean Development Mechanism (CDM). FINRURAL expects the program to create more than one million carbon credits.

Source: IDB (2011a).

Box 6.2: Support for Sector Investment in New Technologies

FIRA analyzed the supply chain of the dairy industry in Mexico to see whether they could bring about reductions in GHG emissions. As part of these initiatives, alongside milk buyers, FIRA is providing incentives to encourage livestock farmers to use biodigesters on their farms to generate energy from waste products. In collaboration with the Livestock Farmers Association (Asociación de Ganaderos) and the Federal Electricity Commission (Comisión Federal de Electricidad), a para-state electricity-producing company in Mexico, FIRA has taken the necessary measures to enable farmers to make capital investments and repay loans by using their utility bills (a safer form of payment).

Source: IDB (2011a).

Box 6.3: Reduction of Transaction Costs via Packages

The Subsidized Gas Conversion Program (COFIGAS) (Programa de Conversión Financiada a Gas) of Peru, run by the Financial Corporation for Development (COFIDE) (Corporación Financiera de Desarrollo S.A.), seeks to substitute the use of gasoline for natural gas in Peru's taxi and bus fleet. Designed to cushion the conversion costs through payments made at the refueling station each time a driver fills the vehicle's fuel tank, the program has used an existing safe-payment system, thereby improving the credit risk of the individual loans, and enabling them to be made on a wide scale. Toward the end of 2010, 135 stations had signed up for the program and were supplying gas. The benefits have been felt not just in terms of GHG emission reductions, but also in greater access to finance and other financial products for bus and taxi drivers, thanks to their growing credit history. The reliability of the payment platform that links COFIDE with the gas stations and banks throughout the entire country has been key to the success of this program.

Source: IDB (2011b).

CONCLUSIONS

Climate change mitigation epitomizes the kinds of new challenges and opportunities that PDBs face globally. Although financial resources to support mitigation activities are flowing, the current global level of finance is insufficient. It is essential to gain access to private investment, either through loans or equity to achieve a widespread, transformational, and long-term impact on all economies. PDBs have the potential to promote market development, create their own market structures, and provide the necessary financial instruments to leverage financial resources to stimulate private sector investment in sector-based mitigation programs.

In the LAC region, while PDBs specialize in different areas and are at different stages of participation in terms of mitigation programs, their combined knowledge, skills, financial products, and networks would enable them to position themselves as financial intermediaries to challenge today's climate change mitigation strategy.

While this challenge is significant, PDBs cannot solely be responsible for providing adequate incentives. Governments should support them through technical assistance for market development, and offer grants to develop financial and risk transfer products, in order to stimulate the supply and demand of finance of mitigation projects under appropriate terms and conditions.

Furthermore, PDBs—at all levels within the institution—should become knowledgeable of climate change issues, in order to create a favorable investment environment. It is therefore crucial that there are low-carbon development strategies, integrated long-term policies, and efficient coordination between the various stakeholders at the national level. As highlighted in Chapter 2, governments and the executive boards of PDBs should provide clear mandates to ensure that PDBs constitute a central component for both policy design and the development planning process.

The need for greater integration of climate change mitigation and development finance in each country presents various additional technical and financial challenges for PDBs. Traditionally, PDBs have centered on national development priorities, and have not been required, nor have they had the capacity, to finance climate change mitigation investment projects. To incentivize private investment, it is important to establish certain criteria and conditions for PDBs to access international financial resources in the climate change sector. PDBs must enter this arena without competing in the local credit market, nor transferring resources from other priorities in which they are involved. While strengthening the role of PDBs to promote mitigation programs can bridge the current investment shortfall, this effort requires the following:

- *To generate knowledge regarding best practices for PDBs in financing climate change mitigation projects.* This calls for a detailed and well-defined analysis of the financial and risk management instruments

that PDBs can offer, as well as the nonfinancial vehicles that may be useful for program developers and local financial intermediaries. Also, PDBs need more extensive training to help them further develop their technical capacities and identify and better understand opportunities to reduce GHG emissions.

- *To ensure that PDBs have the necessary resources to develop their internal capacity to mitigate climate change*. The policy and practices associated with this concept should be internalized not only at the operational level, but also with regard to employee attitudes, so that PDB perspectives can be effectively transferred. PDBs should become acquainted with green technologies and the characteristics of project developers and their risk profiles. They should learn to create tailored products to attract private sector investment and stimulate green investment, as well as gain an understanding of mitigation finance. Finally, PDBs must become aware of available international funding sources and their eligibility criteria and operational requirements.
- *To support PDBs to become leaders in developing the market and creating the private sector investment infrastructure that is required*. PDBs should network with potential market players in their respective countries, identify project developers, and define market segment opportunities, where a significant reduction in GHG emissions could be achieved.
- *To establish policy frameworks that promote a more active role for PDBs in mobilizing and intermediating international finance for climate change mitigation*. Governments should also support monitoring and evaluation processes, as well as establish policies and relevant institutions (e.g., impact evaluations for results-based aid financing). Finally, governments should provide PDBs with a clear mandate relating to climate change mitigation, perhaps by prioritizing these activities at the same level as those relating to other social and development issues.

PDBs should be included in the international arena relating to climate change mitigation funding. Specifically, as the operational strategies for the Green Climate Fund are developed, the contributions that PDBs could make, in terms of lessons learned and previous experience in private sector financing, would prove extremely worthwhile. Moreover, to become successfully involved in climate change mitigation, PDBs can be party to the ongoing evolution of such institutions from the traditional role they have played (with the associated shortcomings) toward a new, and more promising, paradigm.

BIBLIOGRAPHICAL REFERENCES

AGF (High-level Advisory Group on Climate Change Financing). 2010. "Report of the Secretary-General's High-level Advisory Group on Climate Change Financing." New York: United Nations.
Available at http://www.un.org/wcm/webdav/site/climatechange/shared/Documents/AGF_reports/AGF%20Report.pdf.

ALIDE (Latin American Association of Development Financing Institutions). 2011. "Intervención de las IFD en el financiamiento a proyectos medioambientales." Technical report. Lima, Peru: ALIDE.

Brown, J. and M. Jacobs. 2011. "Leveraging Private Investment: The Role of Public Sector Climate Finance." ODI Background Notes. London: Overseas Development Institute.

Buchner, B., A. Falconer, M. Hervé-Mignucci, C. Trabacchi, and M. Brinkman. 2011. "The Landscape of Climate Finance." San Francisco: Climate Policy Initiative.
Available at: http://climatepolicyinitiative.org/publication/the-landscape-of-climate-finance/.

Caravani, A., S. Nakhooda, N. Bird, and L. Schalatek. 2011. "Climate Finance Fundamentals, Regional Briefing: Latin America." Report Summary No. 6. London: Overseas Development Institute and the Heinrich Böll Stiftung North America.
Available at: http://www.odi.org.uk/resources/docs/7473.pdf.

Climate Focus. 2010. "The Handbook for Program of Activities: Practical Guidance to Successful Implementation." Amsterdam: Climate Focus.

IDB (Inter-American Development Bank). 2011a. "IDB Public Sector CTF Proposal, Mexico Renewable Energy Program, Proposal III." Washington, DC: IDB. Unpublished.

———. 2011b. "CTF Renewable Energy Financing Facility (CTF-REFF)." Public Information Document No. ME-L1109. Washington, DC: IDB.
Available at: https://www.climateinvestmentfunds.org/cif/sites/climateinvestmentfunds.org/files/Approval%20by%20Mail%20Mexico%20Renewable%20Energy%20Program%2C%20Proposal%20III%20PID.pdf.

———. Undated. Taken from the website at:
http://www.iadb.org/en/news/news-releases/2011-11-30/mexico-will-boost-renewable-energy,9719.html.

IMF (International Monetary Fund). 2008. "The Fiscal Implications of Climate Change." Washington, DC: IMF Fiscal Affairs Department.
Available at: http://www.imf.org/external/np/pp/eng/2008/022208.pdf.

IPCC (Intergovernmental Panel on Climate change). 2007. *Fourth Assessment Report: Climate Change 2007. SummaryReport* (November). Geneva: PICC.
Available at: http://www.ipcc.ch/publications_and_data/ar4/syr/en/contents.html

Höhne N., S. Khosla, H. Fekete, and A. Gilbert. 2012. "Mapping of Green Finance Delivered by IDFC Members in 2011." Utrecht: Ecofys.

Smallridge, D., J. J. Gomes Lorenzo, and M. Rattinger. 2011. "Public Development Banks: Addressing the Challenges of Financing Climate Change Mitigation." IDB Technical Note No. IDB-TN-437. Washington DC: IDB.
Available at http://www.iadb.org/en/publications/publication-detail,7101.html?id=53986.

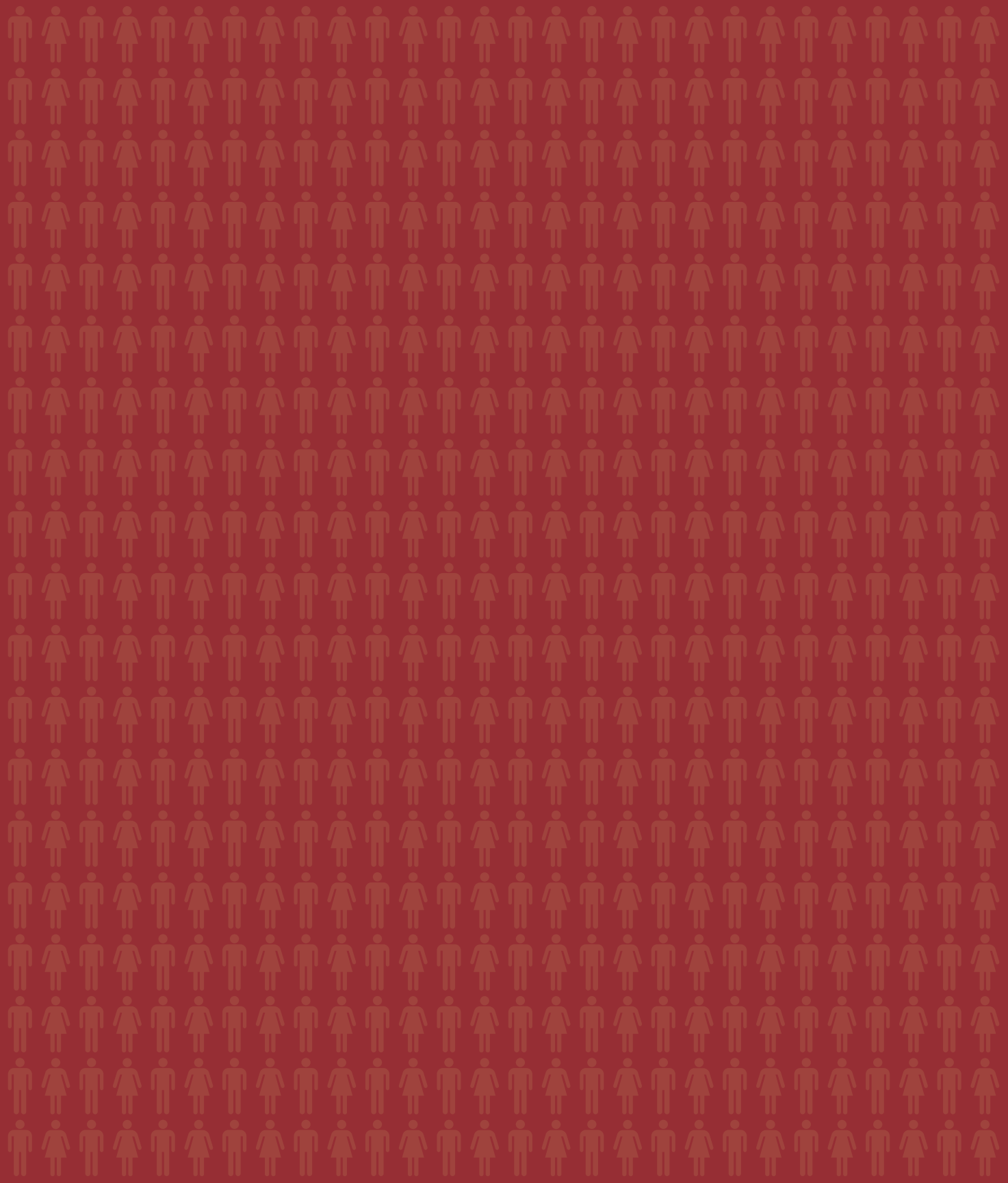
UNFCCC (United Nations Framework Convention on Climate Change). 2007. "Investments and Financial Flows to Address Climate Change." New York: UNFCCC.
Available at: http://unfccc.int/files/cooperation_and_support/financial_mechanism/application/pdf/background_paper.pdf.

———. 2011. "Report of the Conference of the Parties on its Sixteenth Session Held in Cancun from 29 November to 10 December 2010." New York: UNFCCC.
Available at: http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=2.

———. 2011b. "Report of the Global Environment Facility to the Conference of the Parties." New York: UNFCCC.
Available at: http://unfccc.int/resource/docs/2011/cop17/eng/07.pdf.

Ward, M. 2010. "Engaging Private Sector Capital at Scale in Financing Low Carbon Infrastructure in Developing Countries: Key Points Summary." Wellington, NZ: Global Climate Change Consultancy.

World Bank. 2010. *World Development Report 2010: Development and Climate Change*. Washington, DC: World Bank.



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The second publication in the series *Institutions for People* focuses on the public development banks of Latin America and the Caribbean as they enter a new paradigm. In the last 10 to 15 years, these institutions have made considerable progress in the region towards fulfilling their undoubted potential as effective public policy tools. If this trajectory of operational and financial improvement can be consolidated, and public development banks can demonstrate their impact on development, they will be well placed to face even more complex challenges, such as climate change and productive development.

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